

Prologue

I have been working in overseas countries more than 25 years and from a certain time I began to have a doubt and concern which 5S might be misunderstood by the overseas countries. I teach 5S, but as one part of the factory control. But in the overseas countries it might be thought that 5S itself is the factory management. And as the result, only the introduction of 5S is the sufficient base for the implementation of (for instance) TPM, (Total Productive Maintenance and Management). It is wrong and not in good condition for developing company. In the overseas 5S is very well known by the medium and smaller industries rather than Japan. And seemingly it is conveyed wrongly or insufficiently.

And when I was in Argentina I got the conclusive evidence of misunderstanding of 5S. Argentina was 11th country to live for teaching my areas of expertise.

I would introduce a data which was made by the joint work of a National Institute of Argentine and JICA (Japan International Cooperation Agency). They made the awareness survey of smaller manufacturers regarding their wishes for developing their manufacturing industry. (See the graph below. This survey was concentrated in the theme of factory management technology.)

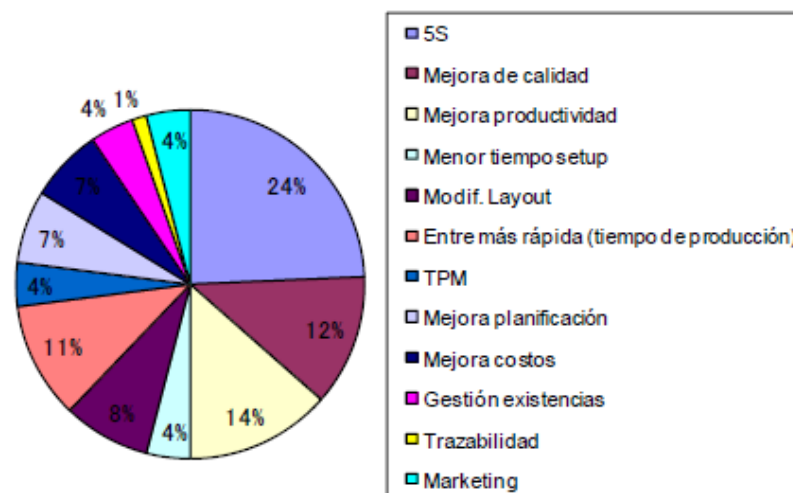


Figura 1-4 Temas de mejoramiento en 62 empresas

All of the manufacturers of the survey knew 5S. And to my surprise, not only they knew 5S, but also they chose 5S as their top wish. Why? Why they choose 5S rather than Cost reduction, Quality improvement or productivity improvement

and TPM?

If there is this survey for Japanese smaller companies, with no doubt, the top wish is to gain an “Only one and unique technology” which is the bread for survive and continues to quality improvement. But the smaller and medium Argentina companies wish to take 5S. They seem to grasp 5S as the sufficient base of factory improvement activity. Of course it is wrong. And 5S is one part of necessary element. Is this trend and the phenomenon in just Argentina? I felt the sense of incongruity and same trend in other countries which I experienced. Also I was convinced that my suspicion was true by one of SNS (Social Networking Service) which has the column of 5S.

But why it was conveyed wrongly or insufficiently?

By the way yesterday I went to a book store which is the largest in Japan and the largest class in the world and possible to buy any book which I want. Of course I can see the book of 5S. There are 52 books titled 5S. Many 5S books were published and are published every year. It shows the popularity of 5S in Japan. (Also there are 58 books titled TPM. However 5S is not so popular in smaller manufacturers.)

And I could understand why it was conveyed wrongly or insufficiently.

The reason is that any book has the shortages of description from the point of view of factory management.

This situation is acceptable in Japan because I believe most of manufacturers can understand that 5S is one of management tool and one part of factory management. However I thought that if it is introduced or conveyed like as these book, it may be understood insufficiently. Then I decided to introduce 5S from the point of view of factory management and believe that it is corrective way to convey this theme to overseas. In this book you may have unfamiliar words such KATAZUKE, 4R and Preventive 3S ---. Those are also essential for the implementation of 5S.

In my description I tried to convey faithfully the words or thought of forerunners such as Taiichi Oono, Shigeo Shingo and Kikuo Suzumura, and also tried to convey 5S in the way of excellent company. 5S is one of good concept for factory management.

And I wish my description to contribute to your good understanding.

1. 5S

1. The origin of 5S. Originally 5S is one part of Factory Management.

Recently I had a concern about the misunderstanding of 5S in the world (including in Japan.)

Saying 5S has the effects for the improvement of efficiency and/or quality in the line.

And saying if we can introduce and fix it we can improve efficiency & quality.

This though is not correct.

And I would write the truth and deny this wishful thinking. 5S has no effect to efficiency improvement and quality improvement (even there, very few.).

Then what is 5S? Let's see firstly from the origin.

The origin of 5S was begun from following conversation of 2 persons at 1965 in the TOYOTA.

Person A: "It is indeed, Seiri, Seiton and Seiso are important to maintain the factory, isn't it?"

Person B: Yes, keeping the factory in the condition of Seiketsu is essential for factory management. And since this time TOYOTA has the concept and logo of 4S (TOYOTA doesn't use 5S and uses 4S) and at this timing he was developing the system of TPS.

From this history the purpose and effect are as one part of factory management and not for efficiency or quality improvement.

By the way the 2 persons are

Person A is Shigeo Shingo who was teaching to the factory of TOYOTA at that time.

Person B is Taiichi Oono who is the father of TPS (TOYOTA Production System. Lean system).

Next I describe that 5S activity has the effect of 5S for the efficiency of worker in the line or not.

Does 5S contribute to the efficiency and quality improvement?

The answer is "no". 5S is the tool of factory management which is called "visual control". 5S is the tool of which identifying usual or normal situation and unusual or abnormal situation. In the factory many troubles are happened daily bases in

Person, Machine, Material, Environment, Conditions.

And we need to resolve these daily troubles before occurring serious trouble such as line stop, accident.

A company grows and as it grows, the item of control and the difficulty of control increase. And also the management loss which is the loss from the lack of factory management increases. Then it is necessary to establish the easier method of factory management and one of most effective method is the visual control with the concept of "Whole employee's participation".

5S is important tool for factory management with this concept. After used (for instance) the tool, return in correct place and correct way to keep the correct condition. And with through the activity even operator can participate to the management of the factory. For the activity of 5S this concept is essential and therefore "incentive" is not suitable. Any way the usage of the activity of 5S for establishing the concept of "Whole employee's participation (to management)" is good idea.

As you know, 5S is Seiri, Seiton, Seiso, Seiketsu and Shitsuke.

Seiri is Separation and separate necessary and unnecessary things in the axis of "time".

Seiton is the theme of put the articles "In where and How".

Seiso is Sweeping. By whom, Where, How and How many minutes and how frequently.

Seiketsu is the Method & device of maintaining the above 3S.

Shitsuke is the Education. By whom: the manager and supervisor of the area. To whom: worker of the area.

I have been teaching my technique more than 20 years to the foreign companies and in 11 countries including the age of the company consultant of my previous company.

And the requirements of my clients are the help of

Improvement of the constitution of the company, betterment of profit,

Introduction of specific system (TPS, TPM, TQM, ISO9000---)

And sometimes I got the petition of coaching the introduction of 5S. At this time always I confirm the wish of the client. And in all the case I recommended to rearrange the system of Factory Management as a total, because if the system of Factory Management of this company is poor, even introducing 5S, there is no meaning and never stabilize. Now for avoiding the misunderstanding about the Factory Management I describe the contents of this.

Factory Management: Policy control, Target Control, Visual control, Daily control, Quality Control, Production Management (narrow sense), Stock control, Material

handling, Communication system (Meeting etc.), Performance control, PM, Purchase control, Subcontract control, KPI, 5S, 4R---

Actually in any case of the petition for instance introduction of TPS, I diagnose the capacity of the Factory Management in my check list. TPS or TQM require the background of Basic Factory Management.

Requirement of instruction of 5S. Why does the company wish? What is the purpose of the activity of 5S? In my experience (particularly in Medium and Small companies), there was no company who has the sufficient capacity of Factory Management. And (for instance the case of the improvement of the constitution), just the activity of 5S is no meaning.

5S is one of gear in the Factory Management and should use in the management (Visual control). The usage of 5S like as a trigger of (for instance) improvement of constitution with another program, it is good idea. For cultivate the concept of "Whole employee's participation in management" with through the activity is also good idea.

-3. Does 5S contribute to the improvement of efficiency and quality?

Firstly efficiency.

I got some objections from my friends regarding my description of "No direct effect for efficiency and quality ". And saying

"I understood that the origin and the tool of factory management.

However it is possible to eliminate the waste time of such as searching tools---

Etc.

Yes, there is such point. But the efficiency may fall rather than improve temporarily.

Once again let us know the meaning of 5S.

Seiri: Original meaning in Japanese is "Eliminating the unnecessary things".

And switching to "Separate necessary and unnecessary things in the axis of "Time". This aspect we can implement with no additional cost.

Seiton: Original meaning in Japanese is "the situation well-appointed".

And the theme of Seiton is that put the necessary things "in where and how".

This aspect also we can implement with no additional cost.

The problem is Seiso: Sweeping.

By whom: Worker in the working place. Where: His working area and tools, machines. How many minutes: 10minutes. How often: daily.

For implementing this aspect it is necessary to invest the money.

If the real working hour is 8 hours (480minutes/day person), 10 minutes is equivalent to 2% of efficiency.

There for the foreman and the manager who have the responsibility of keeping and improving efficiency do not want to share the time.

The owner of the company also doesn't want the cost increase.

Then most of the company quit the activity of 5S.

I worked more than 20years as a consultant of Production Management (broad sense) including the age of the company consultant and saw many cases of this with the misunderstanding of 5S. (Not only foreign company but also Japanese).

I always make the question why you intend to introduce the 5S.

The purpose of the activity is one is the visual control In the identifying the points of MUDA with the condition of 5S in the machines, the movement of the lines, stock in the line, stock in the warehouse, progress of the production, situation of occurring defects, it is possible understand the situation of normal o abnormal and possible to seek the causes and possible to resolve before the waste money.

Also 5S activity has the effect of forming the concept of "Participation by Whole Employees", the consciousness of quality, workability and MUDA.

The leader of the activity needs to explain above to the top of the company and confirm his will before starting.

I said temporarily the efficiency will be down and needs money. But you can reduce this with the activity of Seiketsu.

The original meaning of Seiketsu in Japanese is "Clean in no dirt".

And switching to the meaning of "always keeping the condition of 3S (whether in the middle of working).

For Seiketsu it is necessary to create the ideas in the Gemba. The concept of Seiketsu is similar to "Poka-Yoke". The basic concept of Inspection of parts and final good in TOYOTA is 100% inspection "with no or minimized cost". The parts production process also is required to guarantee 100% quality in 100% inspection. But if does the inspection by human inspector huge money is necessary. For avoiding the cost up Poka-Yoke is required in all process.

The activity of Seiketsu also needs to consider reducing the dirt, untidy in the machine, in the working area. Yes, it is possible to minimize the cost of 5S.

Next

I describe the effect of quality. (No effect to the quality improvement o restrictive).

-4. Does 5S contribute to the improvement of quality?

The answer is "Yes and No".

Yes, it contributes to the quality improvement with only the case which the cause of the defect is (for example) the miss use of the parts or material in the condition of untidy and is very much limited in.

When I was in Mexico (Chihuahua) I was invited by a factory which had the trouble of quality in the machine process. According to the analysis in the PARETO diagram major defects were the Dimension which causes the accuracy of the machine (caused by the poor PM), mistake of the installing the rotary blade, error of data in-put to CAD. And the second defect category was the defect of screwing a bolt. And continued to the defect of Damage, Scar---. The defects of Dimension and Screwing amounted more than 87%. In this line there was no case of defect caused by untidy.

Bad condition of 5S is possible to be the cause of defect, however in fact such case is never major in a production line.

There is a consultant who recommends implementing 5S firstly as the base condition of improving quality to the client who wishes to improve the quality.

It is not bad idea to arrange or introduce 5S. But the important thing is to teach and implement the flow of QC which is Decide the KPI of the inspection process, Data gather, Analysis the data and the gemba, Creation of idea, Implementation of the idea and Follow the result in the graph and Standardization.

The recommendation of 5S is not bad. But it is similar to the story of the doctor who recommends taking one unique vitamin to his patient who complains of the pain in the stomach. If you see such doctor, he should be incompetent.

Next.

I make up the relation of be convenient to be same to efficiency increase.

Being convenient through Kaizen activity (including 5S) is important. However, while being convenient not always improve efficiency.

-5. Being Convenience and increase Efficiency?

Before go to the theme of "Why is 5S concept important?" I want describe for resolving my small concern about the objection of my friend.

He said "Becoming convenient is increasing efficiency". And my suggestion is "No".

My Mexican friends may have wrong thought of “efficiency”. And not only my friends but also many manufacturers have the wrong thought about “efficiency”. And in this opportunity I wish to explain and resolve the miss understanding of “Efficiency”. For explain switch the word 5S to KAIZEN temporarily and use the example of an UK company. This factory had a machine line and assembly line (next process of the machine line). And each line supervisor was competing for the efficiency (of worker). And the supervisor of the machine line won the competition with his KAIZEN activity. He achieved increase the efficiency more than 30% (and as well as the production). And as the results the stock between these 2 lines was increased. (The capacity of machine line was 30% higher than assembly line and also the demand of the month). Yes, the efficiency of the machine line was improved. By the way efficiency is the ratio of Out-Put and In-Put. Therefore if increasing Out-Put or decreasing In-Put it is possible to increase the efficiency.

Now if we look this situation from the position of company total, even though the efficiency increased in the machine line (efficiency partly best), it isn't possible to increase the finished goods because of the capacity of the assembly line and “not increases the efficiency total”. And even though increases the production of finished goods, if the sales amount of the finished goods doesn't increase, also it isn't possible to increase the efficiency of the company total (efficiency totally best). Only the stock between the lines and warehouse should increase.

Actually there were serious problems with the miss understanding of efficiency. Again.

“If becoming convenient with KAIZEN (including improving 5S), does the efficiency go up?” Yes, KAIZEN is one of the most effective way for increasing the efficiency (efficiency partly best). But with just KAIZEN, it is not possible to increase the efficiency of company total (efficiency totally best)

It doesn't allow to make the products or parts exceeding the demand because the increase of the line efficiency.

When improving the workability or reducing MUDA in the process in the activity of KAIZEN and increasing the capacity of the process, if the operator or the process makes his products or parts more than the demand, the excess middle stock in the process or excess finished goods in the warehouse should increase. The company who allows such a thought which making products as much as he can, should have many stocks and the bad influences which are MUDA of Space, Handling, Obsolescence, over stock, Loss of wastes, Repair cost, bad cash flow and the cost of control (person,

computer, office work). Above all things, the worst influence is that the over stock or excess production hides the problems which should be solved. Therefore TPS (and Lean System) never allow the thought. And then for improving the efficiency, the way is just decreasing In-Put (capacity: reduce worker).

And the recommendable idea is to reduce the manning. And it is essential to have the "Software" which is Production Management (narrow sense and the contents are Production Planning, Follow of Progress and Control Production).

Finally I introduce you the famous wise saying maxim of Taiichi Oono (TOYOTA).

Reduction of time is important and Increase efficiency is more important.

Reduction of time is not equal meaning of Increase efficiency.

He said this in the lecture of "Partial best and total best" and say that the efficiency partial best, as such, doesn't always bring the efficiency total best.

Next. Go back to the theme of "Why is 5S concept important?"

-6. Why is 5S concept important?

In the preceding page, I described that 5S doesn't effect to improve efficiency directly from the 2 points of view. One is that 5S requires the investments and other one is that even though implemented it, 5S, as such, doesn't always effect to improve efficiency (if there is no fundamentals of Production Planning). However 5S effects and contribute to improve efficiency and reduction of MUDA indirectly. 5S is one part of important element of Visual Control (which is also one part of Factory Management).

Now I would present one case. And I write this remembering the conversation in the factory. When I was in El Paso Texas of US, I was invited and asked to make a lecture by a company which was introducing the activity of TPM and implemented the 8S (5S plus Shitsuke and ??). Before making the lecture and discussion they guided me to the plant tour. From the reception room we went to the factory. In the factory, beside the gangway machines were distributed. And when we came in to the factory, 3 machines stopped caught my eyes right away. (Temporally we call these 3 machines A, B and C.) Machine A: The operator seemed to be waiting and not working. Machine B: Seemed to be under repair or maintenance. (In the machine there were tools). Machine C: Anyway no working. Below is the conversation. And here I introduce the characters.

General Manager: Ted, Factory manager: Luis, Supervisor: Sam.

Beside A I questioned: Ted, why this machine is stopping? Ted: I don't know. Luis also he couldn't know. And we walked and beside B I questioned. Luis, why is this machine stopping? Luis: May be under the repair. I: When this repair or maintenance will be

done? Luis: I don't know. And we walked and beside C, I questioned. Luis, why is this machine stopping? Luis: I don't know but perhaps there is no work. I said. Ted this situation is your company's management level. You told me I don't know, three times. Your company's focus is that the situation of factory no understandable and most serious problem is that you can't feel a problem as a problem. Let's go back to A. Ted already 10 minutes. That operator is waiting 10 minutes with no working. Waste a time, isn't it? You told me you are trying to introduce the concept of TPM (Total Productive Maintenance) and practicing 5S, didn't you? OK, let's make a discussion about the problem of A. According to Sam, the operator is waiting the material, isn't he? But beside the A there are many materials. (The machine A has the designated area with yellow line for materials.) What are those?" Sam: Those will be used next week sir. Ted, in your factory, you have the materials which will be used next week and don't have the material which use now. Luis, are those materials necessary or unnecessary in your 5S? Luis: Yes, Kimura-san those are necessary. Luis, what is the standard of distribution of material? Sam: Once a day sir. Once again Luis, are those necessary or unnecessary? Luis: I think no necessary. Now Luis three things, firstly your important job as a manager is to make the automatic system to avoid the serious trouble such as line stop (machine stop by shortage of material) and educate them with the standardization of job (when finding the problem of becoming shortage, who should inform to whom and by who should supply immediately). Secondly to identify the occurrence of shortage it is necessary to clarify in the standard (in designated area with yellow line provide the area of material which use currently and another area for next job for instance). Luis the most difficult activity in 5S is Seiri. Seiri is to separate necessary and unnecessary things in the axis of "time" based upon the Standard. For identifying necessary and unnecessary it is essential to provide a Standard (Quantity, container, by who delivered, how often). Ted, 5S is not the just and any activity of beautification and/or straighten and tidy-up but is the way of the establishment of Visual Control. Luis, fortunately your factory is already tidy and beautiful and now you establish the automatic system for control factory involving whole workers.

Finally.

5S is one of important condition, but not sufficient condition (for KAIZEN or Development of a company).

(I always confirm to client what your purpose to introduce 5S is.)

Next continue to describe regarding the machine B and C.

Continue to talk

-7. Why is the concept of 5S important?

5S is one of essential condition for the easiest method of factory management which we call the automatic system of management (visual control) in shop flow. I wrote that 5S no effect to any improvement (of efficiency, quality) directly with just it and it requires the cost. And I said "5S is one of important condition, but never the sufficient condition for Kaizen and development". Now let's see the case of the Ted's factory. The machine B: According to Sam it was under the repair and already 3 days it was left in such situation. And even though this factory to be practicing 5S, we couldn't identify following points. (1) When started the repair and by when finished and by whom. (2) When the previous regular maintenance and when will be the next. Normally those should be identified with the notice boards (plastic board and hanged in the machine). At that moment the spare machine was working and Luis told me "no problem". No problem? Such sense is the very big problem (If the spare machine down, the line stops). Machine C also needs to have the notice board to identify "from when to by when" to be stopped under the production prospect. These cases are not related to the subject of 5S, but the basis which establishing and using the Visual Control is same. By the way my visit to this factory was the second time. And Ted and Luis are my friends. And at that moment this company intended to introduce the system and the concept of TPM and they intended to practice 5S as the basic condition of TPM. Now 5S is the base of TPM? This point I will write next. (Such confusion I saw two times. Once is the case of Ted and second in Chile)

-8. Continue to talk

Why is the concept of 5S important?

Previous report I wrote the importance of 5S for the factory management (visual control). And the case of Ted he implemented 5S as the basis of TPM. Well, is 5S the basis of TPM? The answer is "NO". 5S is not possible to say the basis of TPM (or TQM, TPS, ISO --- whatever), but is just one part. Therefore even though introduce 5S it is not possible to stabilize TPM. I teach and coach the way and methods of Kaizen, TPS (and Lean), TQM (and 6Sigma), TPM, ISO 9000. And when I get a request from a company, firstly I check the level of Factory Management which is the basis of these techniques. It is true if it is not sufficient level, it is never possible to introduce, stabilize and to gain the benefit of the introduction. (When ask the level of factory management, most of the managers and companies respond "yes it is sufficient level". And I diagnose just to

make sure the level with a check sheet. Now please try to check the level of the factory which you know in the items of Basic Factory management.

The items are: Policy Control (annual, with word & KPI), Budget Control, QC(including Inspection system), Delivery Control, Cost Control (with standard & actual), Efficiency Control (with Standard Time), Skill Control (with KPI), Safety Control (with KPI), Scrap Control (actual & ratio), Stock Control (with KPI), Material Handling, Daily Control (with graph), Target Control, Visual Control (with 5S & 4R), PM (with KPI & maintenance record), Machine Performance Control (with KPI), Meeting System (3 essential meetings), Production Management (narrow sense). These items I call "Basic Factory Management" and particularly Production Management (Production Plan, Follow of Progress, Production Control) is my biggest concern area. And adding to above: Purchasing, Reception of order, Subcontract, Design, Layout, Information, Transportation, Standard Time---, totally I call "Factory Management".

Now in the items of the Basic Factory Management, which items can we omit for introducing TPM (or ISO whatever)? By the way let's look the history of TPM below.

~1950's: Maintenance after Breakdown.

1950's~: Preventive Maintenance

1960's~: Total Preventive Maintenance (Whole operators participate)

1970's~: Total Productive Maintenance (Whole organization & people participate)

And Ted's company was the level of insufficient Preventive Maintenance (no KPI and insufficient record). As you know TPM which is the name and logo of the activity originated by Nippon Denso has the frame of activity in 8 pillars (1: KAIZEN, 2:Self-disciplined Maintenance, 3: PM, 4: Development of Products & Equipment, 5:QC, 6:Education & Training, 7:Efficient Indirect Department, 8:Safety, Hygiene & Environment). And the aim of TPM is to eradicate any loss and to establish the system of prevention of the occurrence of losses and accidents. I believe the companies which you know are in sufficient level of Factory Management. And I write this for the companies of insufficient level and recommend rearranging of Factory Management. And 5S is one of effective activity for the Visual Control and establishing the concept of "Whole Peoples Participation" and creating the sense of maintaining discipline. .

Next

I write 5S is Japan origin or US origin?

I wonder why you desire to introduce 5S so seriously.

-9. Continue to talk

Why is the concept of 5S important?

I wonder why you think to be so difficult to introduce 5S and why you so desire to introduce it.

As I wrote, it was the second time to visit the Ted's factory which has 83 machines (including 37 CNC) and 370 workers. When the first visit (before 5S), the factory was usual condition (never chaotic but not good Seiton of tools, layout not bad and easy space) which was rather better than Japanese factory of same scale (because of the easy space). But Ted intended to introduce 5S. Why? It is true that in Japan the factory which practicing 5S with the concept is minority. Most of the factories don't have the concept and the activity especially.

In Japan there are 5.9million businesses and 537thousand are manufactures. And in the 537thousand, 4thousand are large enterprises (0.7%) and generally implement the activity of 5S. But other medium and small companies (533thousand and 99.3%) generally don't do it. And many companies don't know even the concept but have the competitive capacity (in the cost and quality).

By the character of my occupation I looked many manufactures in Japan and in the world and I can say that it is the general tendency that the foreign manufacturers more like to introduce it rather than Japanese. I wonder this point because any country has the sense and the concept of Seiri, Seiton in his language as a common sense. Now at here I introduce an episode (the history) of 5S a little more. In Japan any industry has one same logo which is "ANZEN (safety) DAIICHI (first). Even no implement 5S, whole manufactures have this logo Safety First. In fact this logo's origin is from USA.

And this logo is deeply related to 5S origin. The age is 1900's. In this age the industries had a common problem which was the labor dispute, the economic loss and the lack of worker resulted from the recurrent accidents. And for resolving this problem in his factory, the Chairman Gaily of US Steel decided to change the mission statement which was "Quality First, Production Second and Safety Third" to "Safety First" and ordered to the engineering department the improvement.

And the department improved the situation very much in the activity of "Layout development and Seiri, Seiton". And the company demonstrated that the improvement of safety is beneficial and economical (performance) as a company. This was the epoch which introduced the concept of Seiri, Seiton for safety in industry. This DNA was succeeded to Fredrik W.Taylor and his book Scientific Management. And this book was deeply studied by Shigeo Shingo.

And as I wrote before, in the conversation with Taiichi Oono, Seiso and Seiketsu were added. In Japan the concept of 4S was expanded and the middle of 1980's 5S became popular. Now final S: Shitsuke, it was added at the age of 1970's (after the first oil shock: 1973 in public). And Shigeo Shingo and Taiichi Oono sublimated 2S to 4S which is very effective management tool with adding Seiso and Shitsuke.

Therefore I believe any foreign companies (including Japanese median and small companies) can implement the 2S of US Steel. Now I need to clarify that Seiri & Seiton of US Steel and of 5S are quite different. 2S of US Steel is just any KATAZUKE in Japanese and is one of process of introducing 5S.

Next, teaching and coaching. I write how to introduce it with clarifying the difference of KATAZUKE and 5S as a management tool.

-10. How to introduce and fix 5S.

What is KATAZUKE (which is the 2S of US Steel)?

KATAZUKE is (In fact I already described this as following sentence) "Straighten and Tidying-up (and Beautification)". And I wrote (1) Almost of the medium and small Japanese companies don't intend to do 5S (but to do KATAZUKE). (2) Why foreign companies even small companies want to do 5S. (3) KATAZUKE is the common sense in any country and is done in any company as the common sense. (4) Confused 5S with KATAZUKE (which is one process and the primary work of introduction of 5S).

I believe small company who has little control items in few machines and few kinds of materials & products and workers doesn't need to intend 5S, if he maintains KATAZUKE in common sense.

Once again let's look the case of Ted who has 83 machines (including 37 CNC) and 370 workers. His factory clearly had the management loss such as stopping machine because of shortage of material (despite this machine had a lot of other materials.)

What does this fact tell us? The scale of this factory needs 5S as the management tool.

Now I describe the process of introduction of 5S.

1. KATAZUKE (advance preparation)

In the case of Ted, he also got the coaching from a consultant. But it was just the coaching of large-scale KATAZUKE which the contents is firstly explanation of the importance of 5S and (1) Separation of necessary and unnecessary goods, (2) unnecessary goods Store in storage areas or Discard, (3) Decide the designated area with yellow line for necessary goods and put in, (4) Cleaning of process and passage.

Once again KATAZUKE is quite important process as the preliminary work of the introduction.

Now I explain the method of the introduction and establishment in 2 examples in my experience. One is the case of my factory in the previous company SUMITOMO in Japan. Another one is the coaching in the Mexican factory.

2. Commit to KPI

SUMITOMO's case. I was the General Manager of my department which had 3 factories with 1,500 operators and 8 sections. In the department there were 4 committees which were Kaizen, Safety, New products introduction and 5S. In these, 3 (Kaizen, Safety, 5S) were the permanent committees. And New Products introduction was special committee and it was established according to the necessity and occasion. On the other hand I had 3 core meetings in the meeting system (totally twelve meetings). These 3 core meetings are Quality, Production and Management Meeting. And in the Management Meeting, whole action plan, projects and managerial KPI including the score and trend of 5S in each factory and section are reviewed.

And the important thing is 5S to be committed as managerial index and subject by the top management. This is essential for maintaining 5S.

How? Commit to KPI.

Now 5S committee, it is an organization of mainly foreman.

Members (6 months rotation. Selected by supervisor and the manager.

Approval in Management Meeting: Ratification)

Scope of the activity: 3 factories and 8 sections.

1 chairperson (foreman)

4 members (one foreman, 3 staves of the sections)

1 Observer (section manager)

Monthly activity. Patrol and photos & evaluation for each factory and section in the check sheet and discussion and report (to the General Manager in the documents).

Duration: One hour per month.

5S member's activity in factory. (The case of office is same and omitted)

Members (3 months rotation. Selected by supervisor and the manager,

Approval in Management Meeting: Ratification: same to QC Circle)

Scope of the activity: the factory.

1 Leader (leader per factory)

4 members (line worker)

1 Observer (Supervisor)

Weekly activity, Patrol and photos & evaluation for each factory in the check sheet, discussion and report (to the committee and copy to the General Manager)

Duration: 30 minutes per week.

This committee and the group activities were highlighted in the bulletin board of each factory with (1) organization chart (top responsibility: QC section manager to be the chairperson, 1 committee chairpersons and 4 members and 1 observer, 11 leaders: 3 factories plus 8 offices and 44 members (2) the progress graph, (3) KAIZEN Progress Chart (4) the check sheet.

In the Ted's company, I have introduced this organization and committee in smaller & compact scale.

Next.

I describe the coaching method in KAIZEN activity in the example of Mexican factory.

-11. Coaching

Now from this column, it is the main theme.

From this column I describe the coaching method of 5S in KAIZEN activity in the example of Mexican factory. For your better understanding I disclose some materials & pictures (for example Check List, KAIZEN Progress Chart, Graph, ---: but in Spanish) in the range of confidentiality. And if you like to have, please mail me (kodaikk@hotmail.co.jp).

Before going to this theme, I would explain the purpose of my writing 5S. In LinkedIn I saw many opinions & thoughts of 5S including many misunderstandings. Perhaps I'm (or we are) the final generation who got the direct education including lecture from the great pioneers who are Taiichi Ohno, Kikuo Suzumura, Shigeo Shingo, Kaoru Ishikawa ---. Up to the column -10, I wrote the true concept and the history of it based upon the "words of these pioneers" faithfully to transfer to next generation. Now 5S concept is very popular in the world and is found many thoughts. But if we call these as 5S, it should be better concept and thought than the original. From this column I describe my experience which is based upon the original concept and thought.

The coaching of introduction.

Now we look the case of Mexican factory which he wanted to introduce the concept of KAIZEN.

And in fact it is the same way of introducing 5S and the training of KAIZEN.

(The following is full menu of 6 months for introducing 5S. Then in this case of Mexican factory, I made this in the style of QC circle which the duration is 3 months. Therefore it was completed by 2 groups continued.)

1. Preparation.

1-1. (1) Graph, (2) 5S (& 4R) Check List, (3) KAIZEN Progress Chart,
(4) Digital Camera.

1-2. Organize one team. Member: 5 foremen (or future leaders): One leader and 4 members.

One advisor: QC section manager.

1-3. Lecture (outline) of Factory Management: The frame of factory management: (annual policy, safety, control of budget, daily control, target control, irregularities in gemba, visual control, 5S, 4R, organization of gemba and the responsibility, information route & timing & occasion, QC, efficiency control, PM & KPI, production control, KPI & graphs, Standard) for managers and members (possibly once time and carried it all together, but was twice: for the managers and the group separately and same contents).

1-4. Meeting with the group: Usage of the graph & chart.

1-5. KATAZUKE activity.

1-6. Organize the committee.

1-7. Organization chart of 5S activity in KAIZEN board in gemba.

2. Training in gemba.

2-1. Training of 5S in gemba.

-1. Pre-observation in gemba: 30 minutes with the group member.

-2. Finding irregularities & KAIZEN implementation and the chart.

-3. Training of the usage of the 5S & 4R Check List.

2-2. Training of Seiri.

-1. Standardization: Standard, Visual aid, Indications, Signs, Kanban, Container, Dolly, Pallet, Location & Address.

-2. Fi-Fo

-3. Monthly KATAZUKE with Red tag Tactics.

2-3. Training of Seiton.

-1. Location map.

-2. Location and Address in gemba with the usage of photos, picture.

- 3. Deciding the location in the movement of people.
- 2-4. Seiso training.
 - Keeping clean leads keeping discipline.
 - 1. Seiso is one of important job.
 - 2. Tools of Seiso.
 - 3. The method of Seiso (in the visual aid)
- 2-5. Training of Seiketsu.
 - 1. Seiketsu is one of KAIZEN & training of making ideas.
 - 2. Make the device of not to be necessary to clean.
 - 3. The responsibility of the group leader.
- 2-6. Training of Shitsuke.
 - 1. The role of manager, supervisor.
 - 2. One point weekly lesson to worker in the KPI with graph & chart.
 - 3. The observation from the fixed point (recognizing the progress by all).
 - 4. The secret of 5S is “not trying to look but being possible to see”.
- 3. Final presentation to top managers.

Next. I will explain these one by one in depth.

-12. Preparation.

Before going to the training in gemba some preparations are necessary including the general activity of KATAZUKE. Now let's look one by one.

- 1-1. (1) 5S (& 4R) Check List, (2) Graph, (3) KAIZEN Progress Chart,
(4) Digital Camera.

(If you already got these from my e-mail address, please refer.)

(1) 5S (& 4R) Check List

For maintaining the activity the 5S Check List is good idea. And let's use the opportunity of the process of deciding the check point for the education of the people. The process is as follow.

- (a) Temporary team making: 5 foremen (or future leaders).
- (b) Making the ideas with them in the method of brainstorming.

Now for making the brainstorming as the coordinator, some ideas or pump priming are necessary. Followings are some examples of the pump priming. (Writing without plan)

Seiri: There is no unnecessary stock or articles in the shop floor.

There are no unused articles in the machine & equipment.

There are no unused tools, die, cutting tool or equipment in the shop floor.

It is possible to identify the unused articles at a glance.

There is the standard to dispose the unused articles.

Seiton: There are the signboards to identify the location and address.

There is the display of articles in easy visibility (photo, picture).

There is the display of maximum & minimum stock.

There are the lines of compartment of stock yard, passage.

There is the device to easy return for Jigs & tools.

Seiso: There is no water, trash and oil on the floor.

The machine is always kept clean.

There is the rule for regular cleaning.

The cleaning & inspection is carried out in the machine at once.

The activity of sweep & wipe is into practice.

Seiketsu: Ventilation & exhaust is good.

Day lighting & lighting is appropriate (not excess, not lack)

The working clothes are neat.

There is the device or mechanism to prevent dirt.

There is the mechanism to maintain 3S.

Shitsuke: There is no disorder of the working clothes.

The time to start & finish the job is kept.

The team work is kept.

There is the regular short meeting to communicate.

The rules are kept.

After the explanation of the ideas to members, the coordinator (you) goes to gemba and makes temporarily audit with them. (It may be difficult or not suitable for the factory.) And coming back to the meeting room, the coordinator starts the discussion for deciding the check items.

Lista de Chequear de 5Ss (nivel 2)			
		Fecha:	
		Lugar:	1/3
Categoría	Punto de Chequear	Puntos	Comentario
1. SEIRI (SEPARAR)	(1) Está el extintor en el lugar que corresponde y está correctamente se ñalizado.		
	(2) Está despejada el área del extintor.		
	(3) Hay procedimiento y/o instructivo de segregación en el lugar de trabajo.		
	(4) Estos procedimientos e instructivos son claros y se aplican.		
	(5) Existe algún elemento innecesario en el lugar de trabajo.		
	(6) Se puede decidir fácilmente, si el elemento es necesario o innecesario.		
	(7) Las fechas son fáciles de ver.		
	total	/35	
	porcentaje	%	
	(1) Hay procedimientos y/o instructivos de cómo se debe		

Lista de Chequear de 4Rs			
		Lugar:	página 1/2
		Fecha:	
Artículos	Puntos de Chequear	Evaluación	Punto de Mejoramiento
1. Hacer Regla	1. Tablón tener el plazo vigente.		
	2. Instrucciones de trabajo estar claro.		
	3. Traje de faena estar preciso en lugar de trabajo.		
	4. Hay estándar de trabajo en el lugar de producción.		
	5. Estándar o Regla es base de 5W1H (Porqué, Qué, Quién, Cuando, Donde y Como)		
	6. Puede entender el regla a primera vista.		
	7. No mezclar materiales diferentes, piezas diferentes, herramientas diferentes.		
	8. No hay anomalía de maquina (horizontalidad, ruido extraño, no estable y desgaste).		
	9. Reporte diario estar anotado correctamente.		
	10. Área de Cuarentena estar mantenido como el regla.		
	total		
2. Enseñar	1. Empleador comprender regla y estándar.		

When discussing the items of 5S & 4R, let them imagine the ideal situation of factory. (When making the brainstorming I always use the method of thinking force with small blank cards which is called KJ-Method). Then based upon their ideas, the check list was made (refer to the 5S Check List & 4R Check List).

The contents of these check lists are one kind of “ideal situation or standard of the factory”. Therefore these should be made by themselves (autonomously: the concept of Participation by All).

Next. I write a little more about the making of these check lists.

1-1. (1) 5S & 4R Check Lists

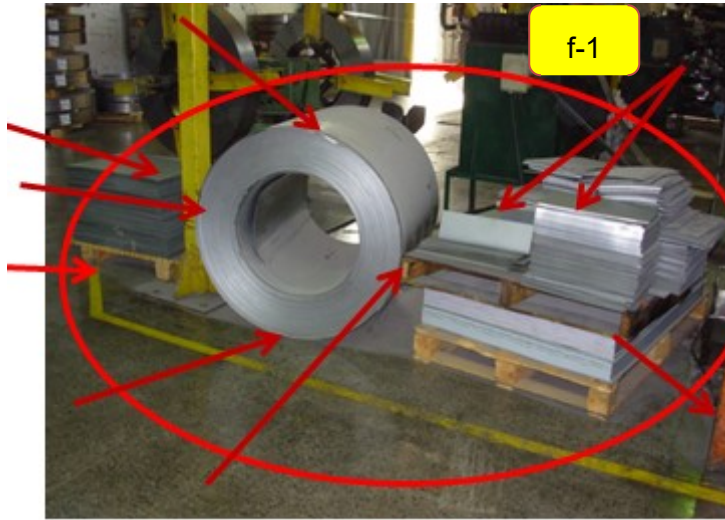
Using the check list is good idea for maintaining the activity of 5S in visual figures. And also when deciding the checking points involving the people of the factory is the best idea, because the check points become the image of the ideal situation of the factory and should be like a standard. For making the check list and deciding the points firstly you need to decide the area as the model case and secondly to make de education in the gemba. Making the education in gemba is very much important as one of training of “to sense the irregularities as irregularities”. This training is very important and in the column of “2-1 Training of 5S in gemba” repeatedly I will describe.

The area chosen of the factory: about 30 workers, 2 assembly lines, 5 machines.

I started the discussion how they can sense the irregularities (problems, abnormalities) in the gemba.

It is quite natural that in the factory which hasn't intended to improve the factory management system there are many phenomena of the problems. In this case of the factory, I said "there are more than 300 irregularities". All of the members were surprised by my word. "300 more?!"

Let's look one photo below (f-1).



In this circle you can identify many problems. (In the designated area with yellow line there are materials and work in progress.) The problems are as follow. (1) The work in progress protrudes from the line. (2) The work in progress has no nametag. (3) The roll touches to yellow pillar.

(4) The roll touches to the pallet. (5) The roll is put on the floor directly. (6) The roll has no name (identification) tag. (7) Two working progresses are stacked. (8) These working progresses have no tag. (9) The designated area has no sign board. (10) The responsible person no identified. (11) Disorder. (12) The raw materials & work in progress are mixed. These are deferent events. And I required them to take photos with the camera. Also I required recording the individual event of irregularities in more than 50 cards per person. Then in the meeting room, continuing the discussion and required to write more including additional piggyback ideas. In facts at that time they wrote more than 300 cards. Once again this training is essential process because 5S is not mere beautification activity, but one of tool of factory management and identify daily irregularities and correct them.

Next step is the sorting of those cards which are included the same opinion. Then they selected 50 ideas for 5S and 40 for 4R check list.

Now once again let's look the 11 irregularities of above photo. (1)(9)(10)(11) are the issues of 5S. But another of (2)(3)(4)(5)(6)(7)(8)(12) are not the issues of 5S, but the issues of "rule". For instance "no tag, put on the floor directly" are very serious problems for QC. But are not the issues of 5S.

For instance in the item of Seiketsu in pump priming, "Ventilation & exhaust is good. Daylighting & lighting is appropriate (not excess, not lack), The working clothes are neat". Do these items relate to 5S? Seiketsu is the "Method & device of maintaining the above 3S". However "ventilation, Daylighting --- are essential for working place. It is like as perversion. In fact in just 5S, it is not possible to govern the factory. Therefore I provided the 4R (Make Rule, Teach Rule, Keep Rule & Change Rule). When making the check list, making just 5S check list is acceptable, but please mix the elements of "Rule".

Next I describe the (2) Graph, (3) KAIZEN Progress Chart,
(4) Digital Camera.

1-1 Preparation: Graph & KAIZEN Progress chart.

When making the check lists it is good idea to make them with workers of the factory, namely using this event as one part of the training in the gemba. By the way the check lists are no permanent, but changeable depending upon the progress of the 5S & 4R.

(1) Mix the element of 4R. (2) Making with gemba. (3) Changeable and not to be permanent.

Before going to the theme of today once again I would write the reason why I write this column.

As you understand there are serious misunderstandings in the world regarding the meaning of 5S.

5S is never the base of any condition for introducing (for example) Lean (TPS), TPM, TQM, KAIZEN ---, but one of important condition. Therefore it is a misunderstanding that you think that even introduced the 5S the well-equipped base is provided.

However the introduction of 5S is very good and recommendable. Because its ultimate goal is whether Lean or not, the KAIZEN mind and the mind of "Participation by all" as a corporate culture are essential. I'm asked to teach and train KAIZEN in foreign countries. And firstly I train 5S for the training of KAIZEN and the construction of the corporate culture and also rearrangement of the level of Factory Management.

Now graph & chart.

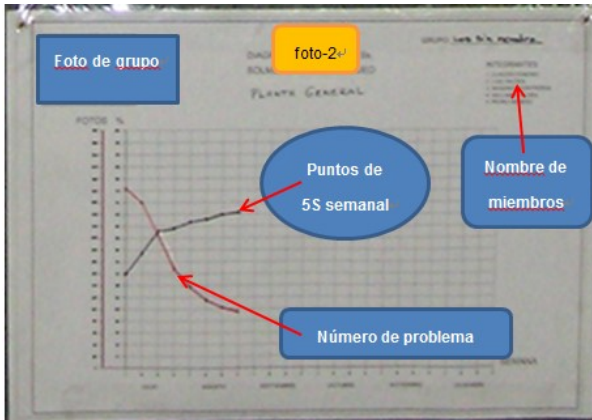


Diagrama de Desarrollo de Proceso 5Ss Fecha: ___/___/___

Integrantes:

1. _____
2. _____
3. _____
4. _____
5. _____

Nº	Descripción De Problema	Foto Antes	Solución	Responsable	Avance	Foto Después	Comentarios
		<input type="checkbox"/>			⊕	<input type="checkbox"/>	
		<input type="checkbox"/>			⊕	<input type="checkbox"/>	
		<input type="checkbox"/>			⊕	<input type="checkbox"/>	
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P = Planificar
 H = Hacer
 Ch = Chequear
 A = Accionar

If you have the blank papers by my e-mail please copy these. The way to use will be described in the training section. Anyway please prepare.

Next I write the theme of 1-2 Organize one team.

Member: 5 foremen (or future leaders): One leader and 4 members.

One advisor: QC section manager.

1-2. Organize one team. Member: 5 foremen (or future leaders): One leader and 4members.

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Before going to this theme I would make the answer regarding the “Schedule of the 5S introduction” which I was required in the e-mail. To make the action plan is good idea for involving whole organization from top to worker in the gemba. The example of the contents of the one year plan is as follow (one example of Japanese company).

1. Preparation.

Organization of promotion

Plan of implementation

5S map (Decision of compartment and the person in charge)

Kick-off declaration.

2. Seiri.

Tactic of KATAZUKE (Tactic of AKAFUDA)

Paint operation.

Signboard, Display board operation

3. Seiso.

Cleaning in “Whole people participation”

4. Seiketsu.

Preventive Seiri

Preventive Seiton

Preventive Seiso

5. Shitsuke.

Education to all

Monthly report

5S patrol

5S News

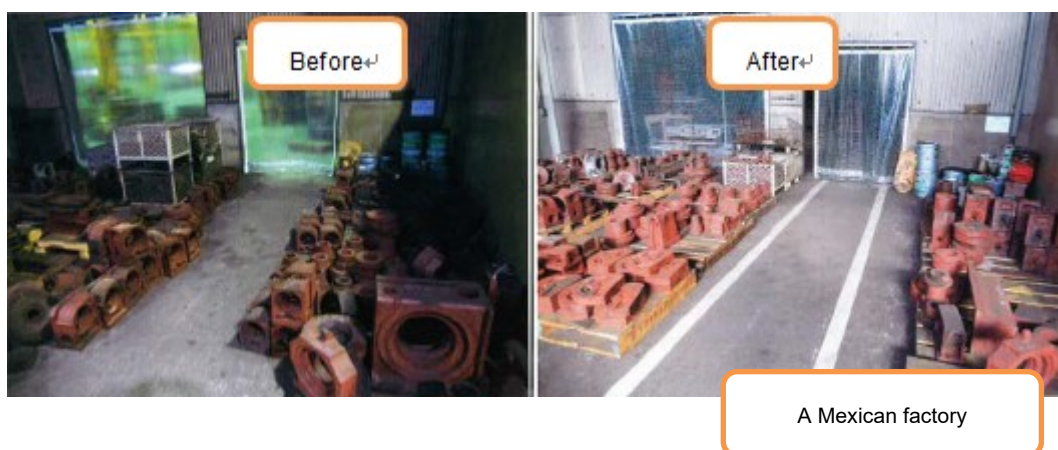
Presentation

This is the example menu of this introduction and fixing of 5S. And if you like to make the plan of the introduction activity you decide the each timing appropriately. Incidentally I don't make such plan, but make and confirm the organization & committee. By the way in the contents there are new words which are Preventive Seiri & Seiton & Seiso and probably I need to explain for you. Exactly I will explain these in the column of “Training of Seiketsu” and here shortly I explain.

Based upon the introduction activity it is possible to gain the better circumstances (for the factory management). However these activities are only the catch-up work. For instance Seiri, why unnecessary articles occur in the gemba? Seiton, why the tidiness is disturbed? Seiso, why become dirty? And we need to consider and create the “mechanism of which doesn’t occur unnecessary articles” “the mechanism of not necessary to return” “the mechanism of not to become dirty”. It may not possible to create the perfect ideas. However we need to consider and create better idea for not only the efficiency of daily 5S activity, but also for preventing the decay of the activity. In fact most of the companies who intended to introduce give up before going to the step (Preventive) in getting into a rut. Let’s look more in the column of Seiketsu.

I attached some photos for your better imagine of Paint operation, Billboard, display board operation.

(I don’t have time more today and stop the writing.)





Next I will write the theme of 1-2. Organize one team. Member: 5 foremen (or future leaders): One leader and 4members.
One advisor: QC section manager.

1-2. Organize one team.

Organize one team. Member: 5 foremen (or future leaders): One leader and 4members.
One advisor: QC section manager.

When deciding the check points of 5S and 4R 5 members were chosen extraordinarily. And now it is necessary to choose 5 to 7 members who will be the members of the committee and the future leaders of individual area.

Why 7? In my experience for instance Mexico or India the turnover ratio was quite high. And therefore if you have the concern of the turnover of leader class, you may need to choose these leaders with considering the concern of turnover.

Anyway you choose 5 to 7 leaders (who don't have to be same members of deciding the check items).

1-3.Lecture (outline) of Factory Management.

The frame of factory management: (annual policy, safety, control of budget, daily control, target control, data gathering system, irregularities in gemba, visual control, 5S, 4R, organization of gemba and responsibility, information route & timing & occasion, QC, efficiency control, PM, production control, KPI & graphs, Standard) for managers and members (possibly once time and carry it out for all together, but was twice: for the managers and the group separately and same contents).

Following figures are the flames of Production Management (right) and the relation of Basic Factory Management & Techniques (left). (Please look the material attached in my e-mail.)

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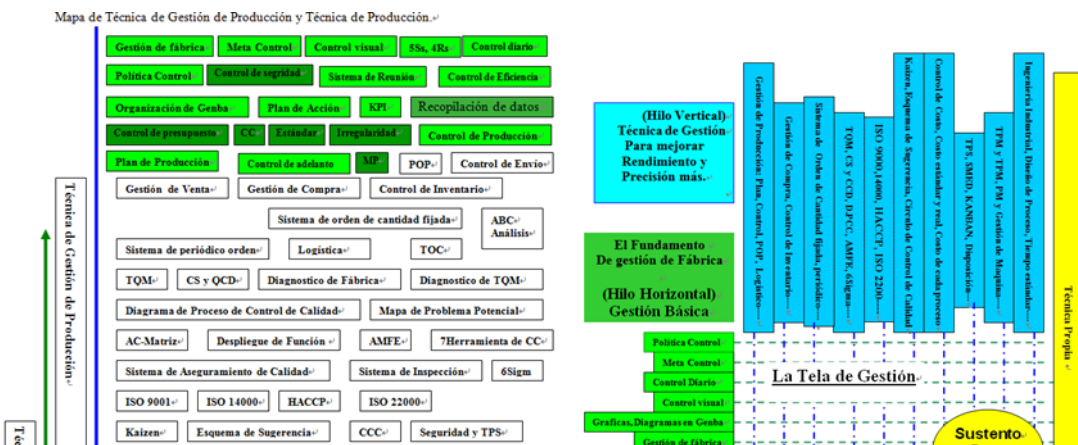
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This map shows the contents of Production Management and the items green colored are the Basic Factory Management. And you can understand the position of 5S in the

Basic Factory Management which is one part of Production Management. Also you can understand the relation of Factory Management and TQM. TPS, TPM ---.

5S is one of important base, but never sufficient condition for introducing & maintaining other system such as TPS (lean), TQM---

By the way last week I got a persistent question (objection?) by a friend and in this opportunity I once again response to it.

5S is not the base of TPM, but one important condition. The base of (for instance) TPM is the Basic Factory Management. For instance if there is no condition of PM (Preventive Maintenance), it is not possible to introduce TPM. Please look next photo.



These are the factories of very good quality and supplying to the famous Japanese companies, but not implement 5S. Particularly the f-3 company implements TQM and has ISO 9000.

(However they must have many rooms of KAIZEN.)

For the foreign manufacturers (also Japanese), it is quite good thing to implement 5S for managing factory. Therefore I would recommend without the theory. The important thing is not to misunderstand that it would suffice even introduce of 5S.

Next I write 1-4.Meeting with the group: Usage of the graph & chart.

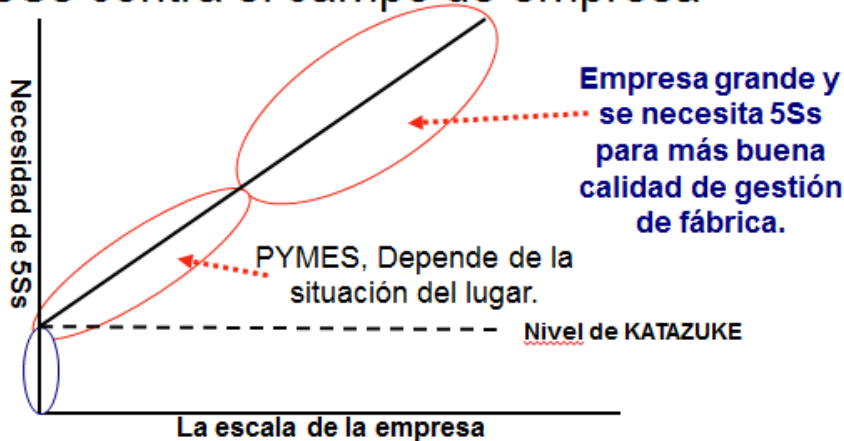
1-4.Meeting with the group: Usage of the graph & chart.

Omit and explain in the 2-1 training.

1-5. KATAZUKE activity.

Let's talk the method of KATAZUKE activity which is one step of 5S introduction. Perhaps the contents of 5S coaching by a consulting firm are the range of KATAZUKE activity. It is good and for small manufactures is sufficient. But for more than medium manufactures it is never sufficient and necessary to introduce the 5S activity for better factory management. Please look next figure.

5Ss contra el campo de empresa



The figure shows the relation of the “necessity of 5S & the scale of manufacturer”. For maintaining the 5S it is necessary to spend the costs. And a small company which has not many control objects (man, machine, material, technique, products and scale) and is in the condition of easier management than big company doesn't need to spend the cost for 5S.

(1) What is the Red Card activity?

Red Card activity is to implement Seiri & Seiton roughly. Why does it say roughly? At this time the standard of Seiri doesn't exist yet. Therefore at this time it is not possible to implement the true Seiri (Separation).

The Red Card activity is to identify “unnecessary goods” in the factory visibly. It is quite natural that unnecessary goods which inhibit the sound factory management are accumulated in the factory during the long day production activity. And it is necessary to implement this activity regularly (in TOYOTA implement this monthly).

I would respond another one of doubt about Seiri & Standard.

As I have written before in 5S, Seiri is most difficult article because it required the standard. Please recall the case of Ted's factory which implemented the apparent 5S. There were many materials besides the machine, but wasn't necessary material. This factory hadn't the standard of Seiri. Also I wrote that Seiri is Separation and separate necessary and unnecessary goods in the axis of TIME. For instance in a line there are

materials which are used in the line and are lot of today's use, tomorrow's, one week later, next month's use. If make a question, does the material of next month's use necessary or unnecessary? Perhaps all may answer "no necessary". How about the material of next week use? Perhaps the answer is "No necessary". Now how about the material of 3 days after use? Perhaps there are many opinions. When doing the Seiri in 5S, it is necessary to clear such doubt in the standard.

When doing the activity of KATAZUKE you need to decide the temporal standard and recommendable idea is 2 weeks. If there is no schedule to use the article within 2 week, the article should be removed from the line to proper area.

Tarjeta Roja		No: <input type="text"/>
Artículo	1. Materia Prima 2. Producto en Proceso 3. Trabajo en curso 4. Producto terminado	5. Maquinaria 6. Herramientas 7. Instrumentos, molde 8. otros
Nombre de artículos :		
Número de artículo :		
Cantidad :	Valor estimado :	
Razón	1. No se necesita 2. Defectuoso 3. No esencial 4. Desperdicio 5. Imprevisión 6. Otras	
Sector de tratamiento :		
Tratamiento	1. Disposición 2. Volver 3. Ir al depósito de tarjeta roja 4. Otros	
Año, mes, día	Fecha de tarjeta	Fecha de tratamiento

(1) The objects of KATAZUKE in factory.

Stock: Raw materials, purchased parts, machined parts, work in process, assembly, semi-finished products, products.

Equipment: Machinery, equipment, vehicles, transport equipment, working table, cabinet.

Jigs: Jigs, tools, cutting tools, measuring tools, dies.

Space: Floor, passage, working areas, wall, shelf, warehouse, room.

(2) Red Card.

Following is one of form of Red Card commonly used in Japan.

Next I wrote the method of the activity.

-18. 1-5. KATAZUKE activity. (Continue)

The activity of KATAZUKE should be implemented by not only the manufacturing sectors, but also the offices. And (I don't think even write) the head of this activity should be the company president (small to medium enterprises) or division manager (large companies).

I already wrote the objects of the activity. And I believe there are no doubt about the objects of Stock, Jigs, and Equipment. But how about Space is? For considering the efficiency of space (Floor, passage, working areas, wall, shelf, warehouse, room) it is necessary to involve in it. The floor and working area of non-administrative state may

cause the bad material handling, bad efficiency of work (layout) and disarranging the 5S. Therefore the space and location should be judged in the activity of KATAZUKE.

Non-control space or inappropriate size causes not only the MUDA of space, but also bad laborer efficiency and the disturbance of 5S.

When you create the space in the activity, you should identify this with stretching rope. (Of course need to consider of the way to use profitably.)

Wall: One phenomenon of a slatternly company is in the notice board. A notice board is important to inform the things to employees. However when visiting foreign companies I saw many cases of non-control notice board which having very old information on an annual bases. Normally a notice board should have the name of responsible person and should be controlled. And the information also should have the expiration date. (And I recommend checking such articles in 4R Check List (See the check list I sent in e-mail)). In the opportunity of KATAZUKE such bad phenomenon also should be wiped out.

Warehouse and stock: Warehouse is one of treasure trove of unnecessary goods.

When I teach the Factory Management and the control of warehouse (or stock) I always teach to provide 3 areas of shelves with color.

One is for normal stock (for instance blue or gray). One is for excess stock in yellow.

One is stock for obsolescence.

Excess stock has 2 categories which are “too low current than the plan” and “at present no current but possible to expect to current in near future”. The stock of obsolescence is the materials of not expected to use (because of the model change, defective). Before waiting the chance of KATAZUKE such materials of obsolescence and excess should be treated daily bases. But in fact there are many such stocks including unknown in the warehouse and costing the unnecessary taxes.

Machine: The rule is “half month”. But in fact most of heavy machine are installed and are difficult to move. And for such heavy machines, just identify the term of plan of non-use in the additional plate hanged. Other light machines should be in the rule.

Before starting the KATAZUKE activity it is necessary to provide a space (possibly with shelves) for the yard provisional. It is necessary to place temporarily up to the finish of the treatment.

The committee members decide the X day (just one day and never longer) with the company president and division manager.

When doing the activity it is no necessary to stop the production, but is required the presence of the factory manager.

Implementation and immediate judgment & prompt decision.

If there is no designated area or the necessity of re-decide the area, identify with yellow tape for the necessary articles. But these designated area and yellow lines are temporary because as the result of the consideration in the step of Seiri & Seiton these may be changed.

In the step of Seiri & Seiton it is necessary to consider in the thought of 5W1H and IE (Industrial Engineering) which is never difficult but is required the consciousness a little more than now. For the treatment of unnecessary goods, the number of days should be within 10 days after the date of KATAZUKE activity.

Now let's start the activity. After finishing the activity it is good idea to make the aggregate list with the finance department (aggregate in amount of money). In the process of KATAZUKE you need to judge the unnecessary & necessary articles and decide the designated area with yellow tape. But still it is just one of process of the introduction of 5S. And when you get the coaching from a consultant you would do this referred to as 5S. It is very good and sufficient for small company (If he or she has the will to manage the factory.). But if your company is bigger and more than medium company it is never sufficient and need to implement 5S. I attached some photos of the case of Japanese small company for your reference.





Next I wrote 1-6.Organize the committee and
 1-7.Organization chart of 5S activity in KAIZEN board in gemba.



19. 1-6.Organize the committee and 1-7.Organization chart of 5S activity in KAIZEN board in gemba.

Before going to this theme I need to respond to a question what is the way to maintain 5S stably. There may be various ideas (it is necessary and essential the top management's commitment & enthusiasm, motivation, the system of evaluation etc.) and are all correct. I believe all people knows the importance of these, however it is also true that many companies which intended to introduce it with above thoughts failed to

introduce or maintain it. Again they know the importance of these to maintain 5S, but can't. Therefore above ordinary answer are not the correct answers.

(The story is deviate.) When I was in UK I have made a conversation with a person of TOYOTA UK to who I called "Shuhe-san" affectionately and questioned. Shuhe-san TOYOTA discloses the system of TPS (Lean), but it is one kind of "confidential business information" isn't it? Isn't there any problem? And his answer was "it may no problem and any company can't introduce and follow the TPS because they haven't the DNA of TOYOTA".

At that time I couldn't understand the meaning of "TOYOTA DNA". But now I understand the DNA is "the corporate culture".

Now go back to the discussion of the way to maintain 5S stably. The important thing is to make and cultivate the corporate culture which is "development of company in Whole People Participation" (even though has high turn-over). Now how can we make and cultivate it? There is no magic bullet, but just saying it 3 years. Above ordinal answers are correct but not sufficient. It is necessary to cultivate the corporate culture in keeping 3 years. In these 3 years only spend the cost rather than the effectiveness. Quite often I get the request of the lecture of KAIZEN. And followings are the words in the lecture (in Argentina).

Epílogo

El secreto al Kaizen

Para la empresa quien comienza a introducir Kaizen.

El secreto a Kaizen es

Hablar Continuamente de Kaizen por 3 años.

Primer año: Sus gerencias dudan de su verdadera intención. Pero comienzan algunas actividades aparentes.

Segundo año: Sus gerencias comienzan a pensar en la necesidad de educación y empleados comienzan a sentir su verdadera intención.

Tercer año: Logra poco éxito y mucho fracaso de casos de aplicación de Kaizen.

Desde el cuarto año puede lograr la fruta de Kaizen continuamente.

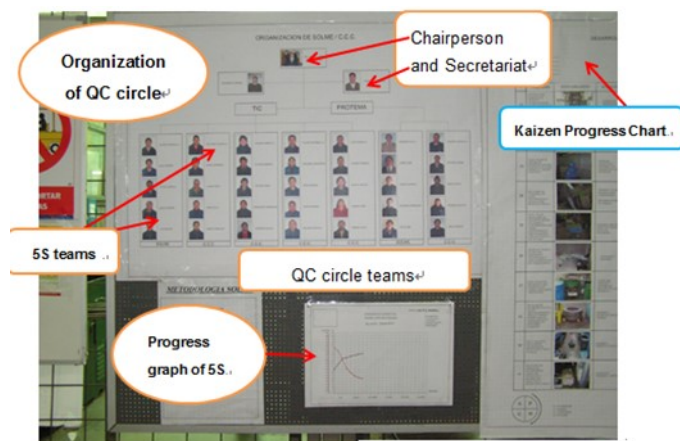
Fin

I write many times but again, 5S is never the ace of spade and just one part of "factory management which is the basic element of introducing & maintaining Lean, TPM, TQM ---". But I often use de training of 5S for cultivating the new corporate culture in the clients.

Note. Shuhe-san: Shuhe Toyoda, President of TOYOTA BOSHOKU (founded by Sakichi Toyoda), Previous President of TOYOTA Europa.

Now I go back to the theme of Organize the committee---

I wrote organize the committee composed mainly of foreman and leader class. And now it is necessary to organize the company wide committee in which the foreman committee is comprised. For establishing the committee and for maintaining the activity the commitment by top manager is essential. Therefore the chairperson of the committee should be the company president (small to medium enterprises) or division manager (large companies). Following photo is one of example of factory control board in medium company.



(In fact I use the training of 5S for the education & training of QC circle or KAIZEN.) Now another important point is to disclose such activity to all employees. And the factory control board is essential. Does your factory have the notice boards to control? I strongly recommend providing and developing the factory control board. Followings are the information in the board.

Annual policy, Quality Data (Number of Customer Claim, Defect ratio, Quality cost etc.), Efficiency, Machine Performance (Performance ratio, Brake down rate etc.), Safety (number of accident, number of injure, number of days continued of no accident & injure etc.), KAIZEN (Number of suggestion, effect in amount of money, QC circle). Line formation of production, Production plan, Score and comments of 5S &4R, Project information and other KPI.

It is no necessary to take and all of above and choose. The purpose of the control board is to share the factory information to all employees. Followings are some examples of control board. (f- 1, 2: one factory of Chrysler. f-3: TOYOTA TAKAOKA.) Recently Chrysler gains the good performance based on the activity of KAIZEN.





Each group has his control board besides the line.

In some opportunities I show more examples of factory control board. Following example is the Red Card for Office Use (which I got a question). Please consider the method of use by yourself. (Again if you need figures, let me know your e-mail address.)

Red Card (for office)	
Place	
Article	
Quantity	
Frequency of use	
Reason	1. Unnecessary 2. Defect 3. Unknown 4. Other
Treatment Sector	
Person in Charge	
Treatment Period	
Method of Treatment	1. Discard 2. Return 3. Move to () 4. Other ()

Next I describe 2-1. Training of 5S in gemba.

20. 2. Training in gemba. 2-1. Training of 5S in gemba.

-1. Pre-observation in gemba: 30 minutes with the group member.

-2. Finding irregularities & KAIZEN implementation and the chart.

-3. Training of the usage of the 5S & 4R Check List.

I wrote some important message about the 5S which were as follows.

- (1) Even be carried out 5S there is no effect directly on the quality and efficiency.
- (2) 5S is one of tool of Factory Management (Visual Control).
- (3) 5S is not a mere beautification activity and it is meaningless if you don't use it for factory control.
- (4) Don't confuse. KATAZUKE is not 5S, but one process.
- (5) For introducing it, the ordinal answers are never sufficient and needs to cultivate the corporate culture.

I'm required to make the training of KAIZEN quite often. And as the training of KAIZEN I use the training of 5S. Yes, training of KAIZEN and 5S is same way. But I always tell the importance of cultivate the mind of KAIZEN and the corporate culture ("Control factory in the concept of Whole People's Participation").

Now how cultivate the corporate culture. Once again let's look the case of Chrysler.

Recently Chrysler shows the resurrection and is profitable (even though other Big 3 Ford and GM plunged in to red.) And following 3 causes effected to the resurrection.

- (1) Concentrated on the American market. (US: OK. but Europa: Recession)
- (2) Devaluation of wages & welfare. (Based upon the agreement of UAW)
- (3) KAIZEN in "Whole People's Participation".

According to the words of the factory manager of this Sterling Heights Assembly plant, creates the annual cost redaction 10million \$ in their KAIZEN activity. To the question of "why you didn't do the KAIZEN activity before?" the factory manager answered as follow. Yes, we were doing it but were never sufficient in the meaning of "Whole People's Participation". Chrysler gained the corporate culture of Whole People's Participation with though the crisis of corporate survival.

(For your reference I attached some photos of recent Chrysler.)

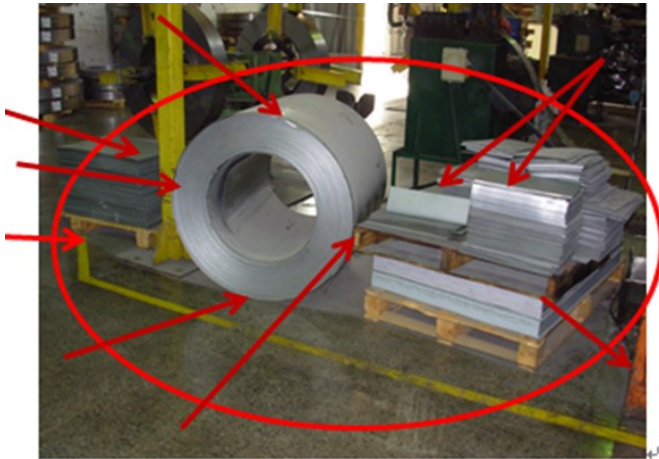
Now how can you gain and cultivate the corporate culture? 5S is one of good tool for cultivate the corporate culture and the ordinal answers also correct. However the point is how you can continue the activity at least 3 years. One of essential point is to involve managers in the activity. (Because managers don't want to continue the troublesome work which don't make better performance directly within 3 years.) One of point is (relating above) to establish the certain organization and identify the role and

responsibility and involving 5S activity in the system of management. And I recommend establishing the company wide committee.

Now let's go back to the theme of today.

-1. Pre-observation in gemba 30 minutes.

In gemba you need to teach how they can find the irregularities. It is quite natural that there are lot of problems (I call irregularities) and more than 300 in a medium working area. Again I use the next photo.



As a coach of 5S, you lead the members to the gemba and let them take a photo which they felt to be problems. And in a photo make the discussion. (For example above photo) And let them answer and write down what are individual problems. In this case of photo there were 11 irregularities (there are 9 arrows but are 11 problems).

-2. Finding irregularities & KAIZEN implementation and the chart.

After the implementation of pre-training let's give them the task of finding irregularities. The important point is the "number" and to let them find irregularities as much as they can. By the way next photo, how do you think, it is problem or not?



There is an ashtray which extended from the yellow mark. And the judgment is “problem”. The case of following photo (pallet out of the yellow line) also let them think as wrong. Yellow mark and yellow line are one kind of the standard for control which should be never had multiple judgments.



After their activity let them discuss the phenomena of irregularities and choose 10 easier cases for implementing KAIZEN. For instance the case of Ashtray.

Problem: Out from yellow mark.

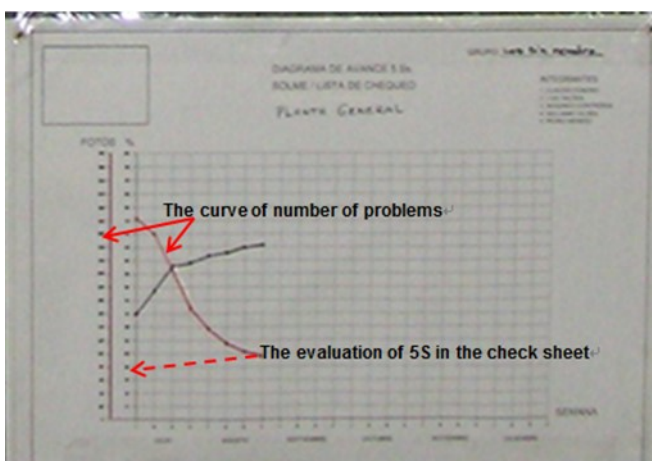
Solution: Put it in properly.

Responsible person: A (one member of the team.)

It is easy to implement the solution, isn't it?

Then let them describe 10 easy problems in the KAIZEN Progress Chart which is possible to describe just 10 items.

Next, writing the graph, let's look the following photo of the graph.



Once again the important point is how much can they feel problems as problems and how many can they find problems.

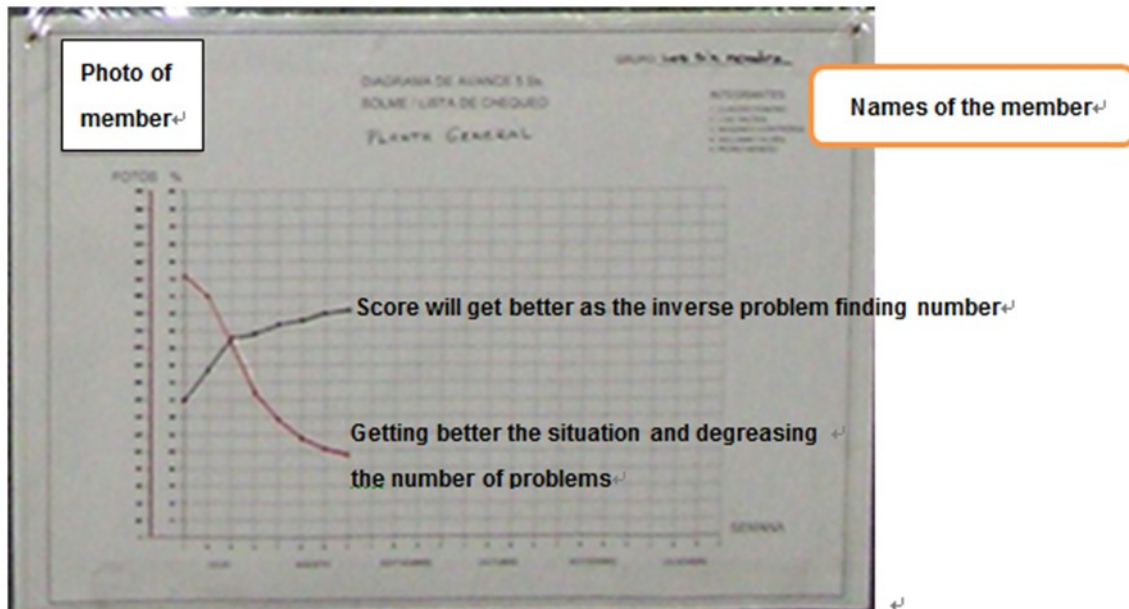
Next I write the KAIZEN implementation and chart. (KAIZEN training)



21. 2-1. -2. Finding irregularities & KAIZEN implementation and the chart.

-3. Training of the usage of the 5S & 4R Check List.

The duration of this training is 3 months (like as QC circle), 12 times (4/month x 3) and make discussion with the group 30 minutes/once time. Once again let's look the graph below.



Firstly I told that there are more than 300 problems and their first task is to find those as much as they can. But it is quite natural that they can't find so much and at most 100. This group found 70 problems at the first time. (And the score in 5S check List was 40 %.) It is acceptable that they can't find problems like me. Therefore it is necessary to make such training. Again first training in gemba is to sense the problems as problems. In the 30 minutes training,

- (1) Firstly finding problems and take photos.
- (2) At the same time evaluate in the Check List at the gemba.
- (3) Confirm the result of 10 problems which were selected last week and take the photos.
- (4) Coming back to the office, discuss and select 10 easiest items.
- (5) Also at the same time discuss the score of the Check List and write in the graph.
- (6) Make up the Kaizen Progress Chart which was made last week.
- (7) Print out these new 10 problems and paste these in the KAIZEN Progress Chart.
- (8) Make up the Kaizen Progress Chart.

Within 30 minutes they have to digest these items. And even though they can't all, it is time out and they need to finish and go back to their work.

Why 30 minutes? It is for getting the cooperation of the factory manager who suffers temporarily and doesn't want to do such QC circle. (5 members x 30 minutes/ week = 2.5 man hours loss superficially.)

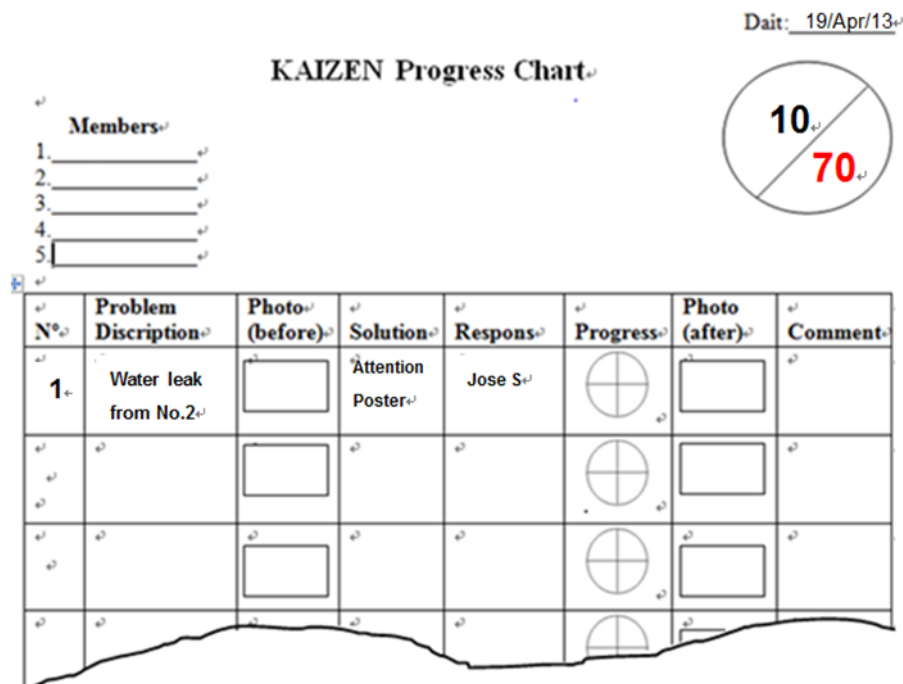
Therefore it is essential to keep the promise to continue long this activity.

Is it possible that digest these items within 30 minutes? I say yes. They share the job and they can do those within the time. But one of rule is that the discussion (break-in) of the score, selecting 10 items and review should be done by all.

(Although says, sometimes I saw that they made the chart in the overtime. I didn't know that the overtime was free of charge or for fee. According to the factory manager, it was for fee.)

From now is the main discussion point and I use one of problem which they chose. First day of training they found and selected one of problem which was the leaking water from the faucet of one in five.

They recorded it in the KAIZEN Progress Chart as bellow. (Look the figure below.)



Problem Description: Water leaking from the faucet of one in five.

Photo (before):

Solution: Make Attention Poster and put it on the wall.

Responsible: José S.

Progress: Mark in the mark of Plan, Do, Check, Action (and now Plan) and mark.

Photo (after): (Omit)

Comment:

Then they made the action and put the poster in the wall.

(After the countermeasure, the second week it was OK.)

But at the third week the problem was recurred. (It is very familiar story which easy problem but occurs repeatedly in gemba.) They could feel the phenomenon something irregular and checked the faucet by themselves and found that the faucet is harder than others and for the female workers was hard. Then they investigated and determined the cause which the packing was worn down. Of course one of members repaired this (It is a thing that if there are even 5 members, there is a forte of repair.). And at this time, the record in the chart was,

Problem Description: Water leaking from the same faucet.

Photo before (Omit)

Solution: Investigation and determine the cause (worn down the packing) and repair.

Photo (after): (Omit)

Comment: Second occurrence. And need to investigate the true cause in 5Why.

How do you think, it is very easy example as a KAIZEN, isn't it?

In KAIZEN there are some ways which are QC Circle, Suggestion Scheme, Mini Project and Gemba KAIZEN and have the characteristic which is no necessary amount of money. And are required the concept of "Whole People's Participation" and the continual activity.

The important thing is to let them experience KAIZEN repeatedly.

And this activity was repeated 12 times in 3 months (12 weeks).

Next I write a little more about this training.

(And introduce the example of very good KAIZEN this group made.)

20. Continue the KAIZEN Training.

Last week I wrote 3 things.

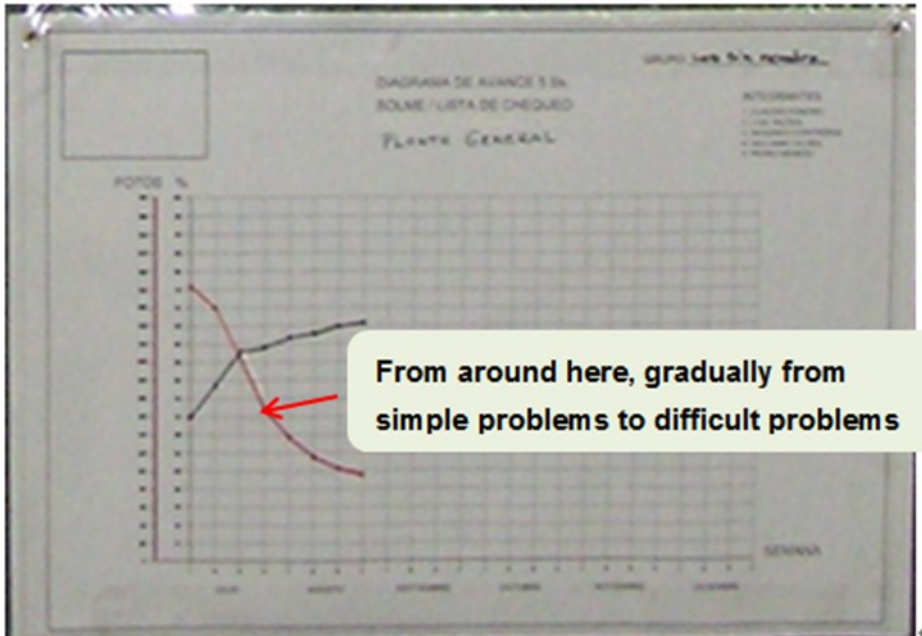
Firstly the important point of this training is to find irregularities as much as they can.

(Training to sense the problems as problems.)

Secondly select easiest 10 irregularities and take action by them. (Training of KAIZEN)

Thirdly use of Kaizen Progress Chart for the visibility of this activity for all.

Again look the graph below.



You find the trend of finding problems are dropping very rapidly. This doesn't show their skill down, but reducing the problems in the gemba. Gradually the workers also cooperate and participate to the activity of 5S. And gradually more difficult problems are to remain. One example of their difficult problem was the dirt of the machine. Again the meaning of Seiketsu is to maintain the 3S also "Keep Clean always" (would be in the work). This machine uses and scatters a lot of lubricant and was always dirty. They needed to put the time and effort to clean every day (30minutes). Of course they picked up and took the photo repeatedly. Firstly they thought that it is impossible to keep clean during the machine working. I told them 2 things. What is the meaning of Seiketsu? The meaning of Seiketsu is to device to keep 3S (and clean). And what is the function of lubricant? The purpose of lubricant is that

- ① Clean up the slug from the work-piece.
- ②Cooling.
- ③Lubricating.
- ④Protection from rust.

In this machine and work-piece or product how much lubricant is necessary for the function? And why you do use so much lubricant for the necessary function? Why scatters? Then they considered and got the answer as bellow.

Firstly they reduced the quantity of lubricant properly. Secondly they devised the part cover to prevent the scattering. Part cover, they created the idea, is one of essential thought and technique of TPM (Preventive Maintenance Total). But aside they made their final presentation to top management in not only the result of 5S activity, but also the result of this KAIZEN example with pride. And second group of 5S evolved the idea

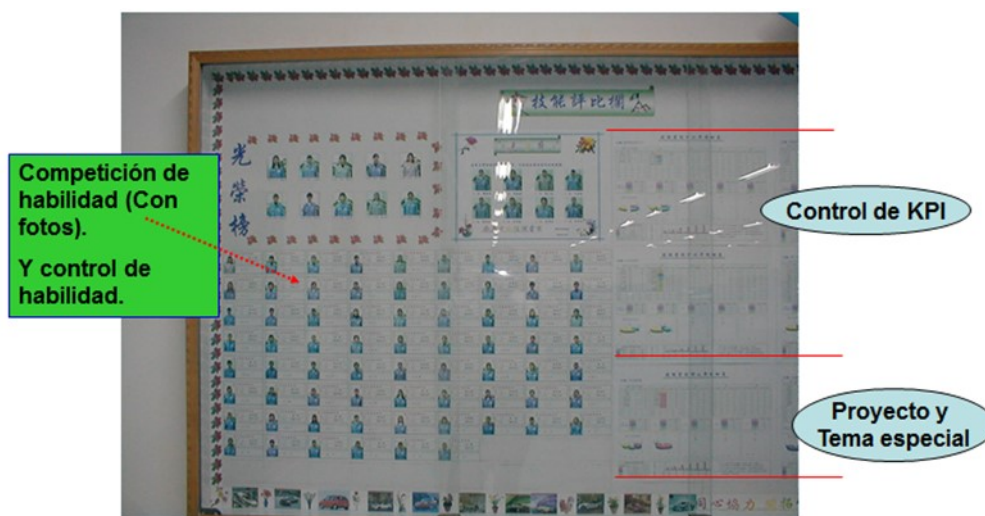
of part cover and expand to other machine for preventing the scattering oil, lubricant and cutting waste. Again the meaning of Seiketsu is to device for keeping 3S always.

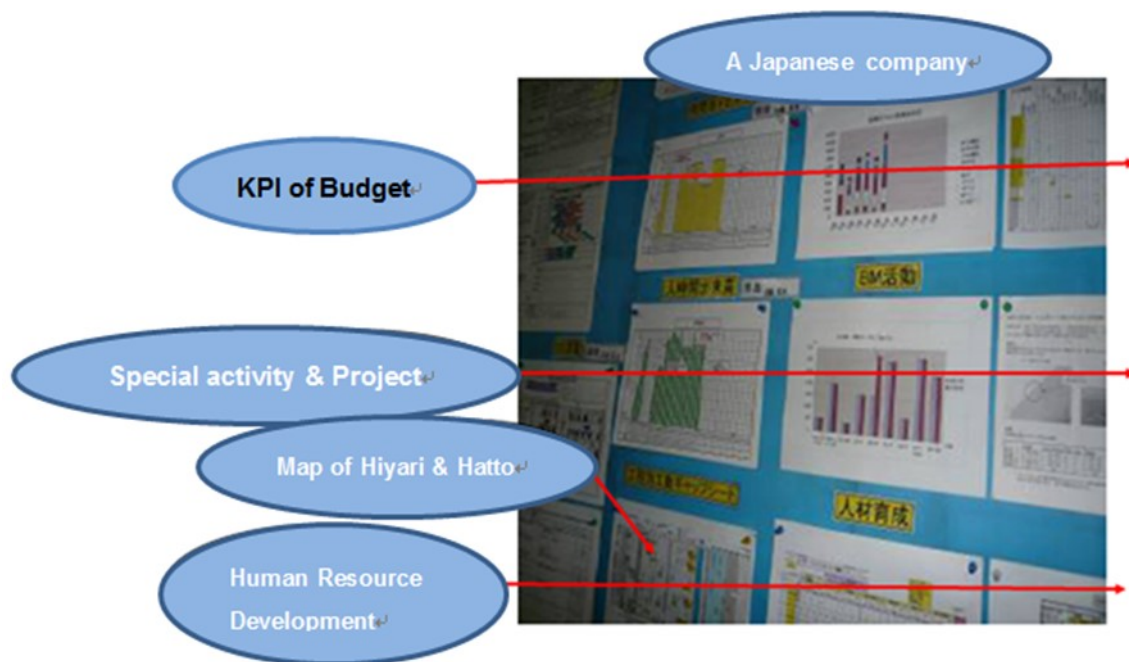
With through this training they could improve their capacity of KAIZEN.

At here I identify the task of the factory manager. The problems remained become gradually difficult. And the manager needs to show the attitude to support which is very much important for maintaining this activity as the member of this committee. And you should to observe and advise this point to top manager.

Next I write 2-2. Training of Seiri.

For your reference I show some examples of Factory Control Panel.





23.2-2. Training of Seiri

For training of the Seiri I write 2 ways.

KATAZUKE. First way is the method of KATAZUKE which we have already finished the method as the first step of 5S activity. However the KATAZUKE of the first step of 5S and the KATAZUKE of this column are different characteristic. The KATAZUKE of the introduction is as follow.

- Separate necessary and unnecessary articles.
- Unnecessary articles are treated properly. (Discard, Return to warehouse, Stock in temporary and designated area)
- Decide the location for necessary articles.
- Color mark with yellow tape or paint for the designated location.
- Put the necessary articles in the location designated.

After the beginning of the activity by the group of the committee and beginning of the training of Seiri (implementation of Seiri and fixing the concept) I recommend implementing KATAZUKE monthly. In fact even now TOYOTA makes it monthly bases. Again this step's KATAZUKE is a little different to the first step. The different point is as follow.

- Beginning step: Judge the articles necessary or unnecessary in common sense or rough standard.
- This step: Decide standard logically.

Let's look the case of machine & equipment and materials.

Machine & equipment and dies: Top management and the departments of Sales, Production Planning should decide following matters. ①Discard ②Remove from the production area and put it in the assigned temporarily area ③As it stands. But Regular maintenance, Identification of the period of no plan of production should be identified visibly.

Jigs, tools: Factory manager decides with the supervisor, the departments of Quality, Engineering and Production Planning.

These above articles are easy to identify and understand and not so difficult to decide. Of course these necessary articles should be decided the designated location with color marked. Next materials.

Before going to "Materials" please remember the words which are "Assigned Location, Assigned Articles and Assigned Quantity" and these words are used in the Seiton also.

All articles including materials should be followed this rule and should be decided these "3 Assigned". Machine, equipment, dies and Jigs & tools should need to have the location number like as the address of house in the map. Machine, dies, equipment including transport equipment needs to have their own number tag like as the names of resident in the map.

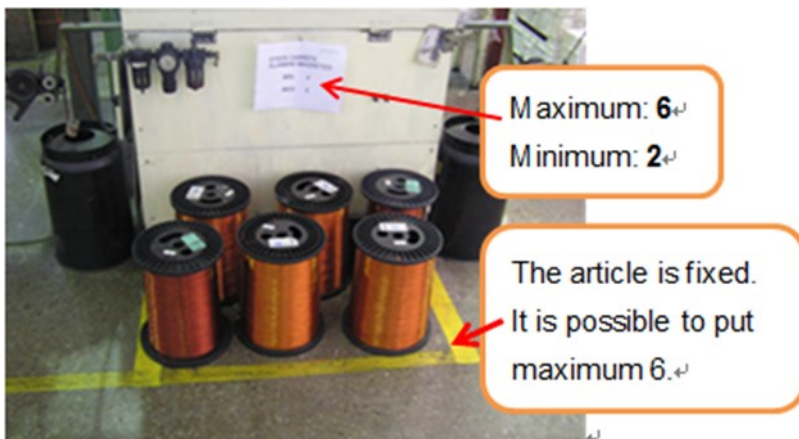
Again the term of one of group is 3 months. And within the 3 months this group should finish all process of 5S introduction activity. Of course they should finish these training and the settlement of 5S foundation. Therefore the selected area can't be so wide.



Now the purpose of this training is not only the making up the base of 5S activity which is to be possible to identify unnecessary articles visibly, but also the training of treating properly the unnecessary articles.

I wrote above that machine, equipment, dies and jigs & tools are easy to identify & decide and treat. Because in the 2 Assigned (Assigned Location, Assigned Articles) it is possible to identify the matter of Assigned Quantity. (For instance Tool stand photo below.)

Materials. The matter of materials also it is easy to decide and identify the 2 A (Assigned Location & Assigned Articles) and the necessity in visible. However it is not easy to judge the Assigned Quantity and is necessary to have something display to identify the quantity. (For instance next photo.)



This is easy case and is possible to understand 3A.

This is an easy case because in the 3A Assigned Articles is fixed and just one. But usually 2A of Assigned Articles and Assigned Quantity are valuable (but just Assigned Location is fixed). Therefore something of identification (name tag) is required.

This group selected the assembly factory which has 3 assembly lines and is supplied the parts from the adjacent machine factory. The parts were supplied to each line as "Push System". And the assembly factory was as the confused stock area of the machine factory.

Next I write how this group could solve the confused stock situation.

24. 2-2. Training of Seiri (continued)

Last week, I described the fundamental rule which I call 3A (Assigned Location, Assigned Article and Assigned Quantity) for maintaining the activity of 5S and also have described that in 5S most difficult activity is Seiri because the standardization is required. (And the space of Assigned Location is decided based upon the Assigned Quantity.) The difficulty is how decide the assigned quantity logically.

This group and the factory have had the problems of the confused parts stock which was been sending from the machine factory. And the most serious problem was the frequent lines stop in spite of high amount of the stock level (almost 20days stock)

beside of the lines. (To say because there is high amount of stock that does not mean that there is no stop line.)

In the activity of 5S, firstly this group considered Seiri y Seiton (but actually they made just the Straighten & Beautification and put the location number in the shelves) of the stock area of the parts.

Secondly they began to have the doubt about the stock. Even though we have a lot of stock, why is happened the repeated line stop because of the parts shortage? For us what is the necessary quantity? And by whom the Assigned Quantity (necessary quantity) should be decided. And they realized that it should be decided by us (assembly process is the customer of the machine factory.).

Then they made the discussion with the factory managers (both factories of assembly and machine) under the presence of me. Then they decided to return unnecessary parts to the machine factory. However still the problem what is the necessary quantity was remained. What are the necessary parts and quantity? They required my point of view.


②

And they made following activity for deciding the Assigned Article (Parts) and Assigned Quantity.

① Standardization of container of the parts for each line (as greatest common divisor in one line).

This assembly factory has 3 lines and manufactures 9 types, 1000 products/day.

② 2 KANBANS. The figure is as follow (the case of the Line-B).

Name of Line	LB	Address	B-03	Photo
Product Number	ASSY 123-45-678M			
Product Name	XYZ-098-70			
No of Pieces	50	Packing	CON-B03	

(The back of this KANBAN is the list of Bill of Material.)

③ Location for 2 containers in one line.

Now I explain the use of this KANBAN (Actually this is not the KANBAN of TPS, but is the simple system called "Double Bottle System" which there is since ancient times. Or this is possible to call one kind of primitive KANBAN: Withdrawal KANBAN.)

The situation of the stock at the beginning of production at the Line-B: Stock (work-in-progress) in the line (less than 50) and the stocks (2 containers) beside the line with 2 KANBANs. (The production: 100/day)

-1. Start production.

-2. Finished the stock (work-in-progress) in the line and begin to use the parts of first container.

When begin to use, remove the KANBAN from the container and put it in the box designated.

At this time there is the stock of another one container (half day stock).

-3. At 10 o'clock (and 15 o'clock) the line leader goes to the stock area of the machine factory to gain the parts of one container for 50 products. (The back of this KANBAN is the Bill of Materials.) And he carries to the Assigned Location of the parts.

(Withdrawal of Designated Timing and Designated Quantity)

-4. Puts the container with KANBAN in the location. At this time for keeping Fi-Fo it is necessary to push and slide the remained container to ahead.

In this system the stock level is maximum 2 containers (2 KANBANs = 50 x 2 = 100 sets = one day stock) in the stock location plus one container (as work-in-progress) in the line. And minimum level is one container (50 sets of parts).

Assigned Quantity. The starting point of this column was the logical Assigned Quantity.

This group used the formula for deciding the number of the KANBAN as follow.

$$NK = (NQ \times L/T + SS) \div NC$$

NK: Number of KANBAN

NQ: Necessary Quantity per day. (100 sets)

L/T: Lead Time for procurement (0 day because there is the stock area in the machine factory.). SS: Safety Stock (100 sets). NC: Number of the parts in one container (50 sets per KANBAN)

$$(100 \times 0 + 100) \div 50 = 2 \text{ KANBANs}$$

When they made this discussion one of point was the SS (safety stock). Because of the repeated line stop, most of the group member required 200 (2 days) stock. But finally they accepted the one day stock.

Then they could realize the 5S situation in the assembly factory and they made their final presentation with this result (reduced the stock in the factory with the new system

and new concept which is from Push system to Pull system). By the way their KANBAN is one kind of Withdrawal KANBAN.

But as the company still fundamental problem which was the stock control of the machine factory hadn't been resolved.

In this activity of the group the machine factory and the department of Production Planning were made to realize how they made so many useless stocks. And the person who seriously felt the problem was the president. And in this opportunity this company decided to introduce the KANBAN System in and between the machine and assembly factories in my teaching and established one project in parallel of the 5S committee activity.

For introducing KANBAN System it is essential to improve the process reliability (machine reliability & PM level and quality reliability in machine, operator in skill and standard working method, materials reliability in quality & supply.) and the Small lot Production with SMED.

This is the column of 5S and I stop to write any more of KANBAN. And if I'll have time and chance I would write TPS.

Again the cases of Machine, Equipment, Dies, and Tools are not difficult to decide and identify the 3A (Assigned Location, Assigned Article, and Assigned Quantity). But the case of flowing materials is difficult and is necessary to have something of identification like as KANBAN to decide and identify the Assigned Quantity logically.

Next I write 2-3. Training of Seiton.

25. 2-3. Training of Seiton.

Before going to this theme I would respond to some questions. (Even so my friends like the system of KANBAN.) And a little more I complement the use of the Double Bottle System (not the KANBAN system.) of this factory. (In fact quite often I use this simple and useful system in very simple production line for the visual control & self-process control.)

(1) The form of the Bill of Materials of back of the KANBAN is the following figure.

Back of the KANBAN

Bill of Materials				1/2
Product:			No.	
No.	Parts	P.No.	set	Check
1	A	A12345	50	✓
2	C	C23456	50	✓
3	BA	BA5678	100	✓
4	BB		100	85
5	C	The name of Parts and the number	50	✓
6	V		50	✓
7	M		50	✓
8	N		50	48
9	U		50	✓
10	I		50	✓
11	G		50	✓
Memo				

Annotations:

- One piece of 2 KANBANS (points to 1/2)
- Product name and the parts number (points to Product: and No.)
- Number of parts/one set (points to set column)
- Collect necessary quantity to the container and check mark (points to Check column)
- 15 shortages to 50 sets (points to 85 in row 4)
- 2 shortages to 50 sets (points to 48 in row 8)
- These shortages are required to solve immediately in the Request List (points to Check column)

(2) The use of this KANBAN (Double Bottle).

Imagine the Line-B. Beside the line there are the parts in 3 locations where are the Line-side (Start to use the parts in the line.), the stock area of the line side (for two containers and Location 1 is colored in red and another one Location 2 is colored in yellow. This group intended to reduce the line side stock firstly 100 (one day stock) to second step 50.

First step: Initial stage of introducing this system and line side stock 100.

When begin to use the parts of a container, the group leader should collect the KANBAN card and at the same time go to the shelves in the machine factory and gather necessary 50 sets of the parts in the empty container. And this situation in the formula is as follow.

$$\text{Again the formula of } NK = (NQ \times L/T + SS) \div NC$$

This case $NQ = 100/\text{day}$. $L/T = 0$ (at same time). $SS = 100$ (one day stock). $NC = 50$. Therefore $NK = 2$. And always the line can keep the SS (100) in the Location 1 & 2. This $L/T = 0$ means that he needs to go to gather the parts immediately in the given moment.

Second step: Treat KANBAN 2 times/day at 10 o'clock and 15 o'clock.

The line became more familiar to use the KANBAN and decided to reduce the SS: 100 (one day stock) to 50. Also the group leader wanted to treat the KANBAN 2 times a day. And the situation in the formula is as follow.

$NQ = 100/\text{day}$. $L/T = \text{each 4 hours (1/2 day)}$. $SS = 50$. $NC = 50$.

As you understand the Lead Time was changed from $L/T = 0$ (immediate) to 0.5 day. The number of KANBA is same but SS was reduced to 50. And the situation in the formula is as follow.

$$NK = (100 \times 0.5 + 50) \div 50 = 2$$

Here I write the other one of important rule.

Yellow (Location 2): Under control of the group leader.

Red (Location 1): Under control of the factory manager.

When appearing yellow, still it is under the control of the group leader. But when appearing the red which mean is that the level of stock in the line is less than 50 (in this case is half day) and shows the risk of line stop, then it should be under the control of the factory manager to avoid the line-stop. As you understand the area red is understandable the unusual situation by everybody. For your better understanding I attached the cycle of the KANBAN. And let's round up this place and move to next.

-1. The case of no shortages in the parts shelves in the machine factory. And foreman gathers immediately. ($L/T = 0$)

Time	Work situation	The move of the group leader	Line side	Location 1	Location 2	Total
8:00	Beginning of the work		50	50	50	150
12:00	Finishing the work of before noon	(Finish to use the line side 50)	0	50	50	100
		1. Prepare 50 sets for afternoon 2. Goes to machine factory and gain 50 sets	50		50	
		(Before starting the afternoon)	50	50	50	150
17:00	Finishing the work of day	(Finish the 50 of line side)	0	50		50
		1. Prepar 50 sets for tomorrow 2. Goes to machine factory and gain 50 sets	50			
					50	150

$$NK = (NQ \times L/T + SS) \div NC$$

$NQ = 100$. $L/T = 0$. $SS = 100$. $NC = 50$
Always there are 2 containers in the line side atock area.

The case of 2 times a day treatment

Time	Work situation	The move of the group leader	Line side	Location 1	Location 2	Total
8:00	Beginning of the work		50	50	50	150
10:00			25			125
12:00	Finish the work of before noon	(Finish to use the line side 50) 1. Prepare 50 sets for afternoon	0 50	50	50	100
15:00		2. Goes to the shelves to gain 50 sets	25	50		75
					50	125
17:00	Finish the work of the day	Prepare 50 sets for tomorrow	0 50	50	50	100
				50	0	100
8:00	Beginning of the work		50	50	0	100
10:00		1. Goes to the shelves to gain 50 sets.	25	50		75
					50	125
12:00	Finish the work of before noon	(Finish to use the line side 25) 2. Prepare 50 sets for afternoon	0 50	50	0	100

$NK = (NQ \times L/T + SS) \div NC$
 NQ= 100/day. L/T = each 4 hours (1/2 day = 0.5). SS= 50.
 NC = 2. NK= 2.
 If there is no shortage in the shelves , it is possible to keep the minimum stock of 50 in Location 1.

Training of Seiton.

10 seconds rule and check the level of 5S.

In my previous company I had a 10 seconds rule for checking the level of 5S which is that anyone should be able to take out any jigs and tools within ten seconds (documents: 15seconds).

When I was in UK and worked for a large enterprise which had several factories in my division and I have checked the level of 5S of these with this rule. The scale of these factories were from 200 to 800 workers in one factory. The method of the test was that choosing several jigs and tools in the factory and asking to the relevant group leader, supervisor to bring them, and measure the time and calculate the average time per one tool (excluding the walking time). The result was 7 seconds ~ infinite (time over and more than 5 minutes) and average was 38 seconds (not including infinite). I made this test as the part of education of 5S. The important rule is not only within 10seconds, but also "by anybody". And I have checked the time in same method in several small companies who had 7 to 20 workers. The result was 22seconds and the results of the

small companies were better than large. The Seiton is the theme of “where and how put the articles” and the important condition is anyone can identify and use & back it easily. Small company is better result than large factory (both of them didn’t implement 5S and just KATAZUKE in common sense.). What does this result tell us? The scale of company grows and has management subjects increasingly. And due to the lack of management, the loss so- called “management loss” increase. Once time please check the level of your company.

Next I continue to write the subject of Seiton Training.
Location Map & Location, Sign board activity.

26. 2-2 Training of Seiton continued.

In this 5S column, I use the case of one Mexican factory. And let me explain a little the background of this activity in this factory.

The encounter of this company and me was with through the introduction of my client. At the time the American new CEO of this Mexican factory had the trouble of the company performance because of the bad products quality, compensation for customer’s claim, decrease in sales and bad efficiency and wanted something of structural reform. In fact this company which had 1,870 workers had typical enterprise disease which I call giant baby disease which the company grows just the sales scale and not grows the system of management. When I made the interview to confirm his requirement he told his desire which was to make “Structural Kaizen”. And he didn’t wish to use the word of “Structural Reform, but “Structural Kaizen”. The word Kaizen has the nuance of endless continuation and he put his determination in the word. Then I started my education for this company. For the Structural Kaizen, I suggested to implement following methods to achieve this theme.

-1. Establishment of 3 important monthly meetings

(1) Management Meeting to follow all of KPI

(2) Quality Meeting to follow the performance of quality including customer claim

(3) Production Meeting to plan and follow the production

Deciding the KPI and the target figures. KPI (Key Performance Index: Index relating to the enterprise resource: Man, Machine, Material, Money and Intellectual property).

For consulting I have a certain way and common practice means which is to make the frame of management and intend to fit into it for such requirement. With through the monthly meeting it is necessary to make clear the Responsibility, Authority & Delegation

of authority of each class of managers, supervisors and foremen also raise the accuracy of KIP. In the KIP the figure of 5S, number of suggestions & implementations, number of QC circles & group activities are essential for measure the advance & level of the concept of "Whole People's Participation".

-2. Establishment of Kaizen Conference: Kaizen Committee (QC circle, Suggestion Scheme), 5S committee and Safety committee.

The introduction of this conference and committees intends to gain the results of "Killing two birds with one stone". One bird is the improvement result of performance such as quality improvement, efficiency improvement, reducing scrap with very few investments. Another one bird is to make the condition of "Whole People's Participation".

-3. Communication Route

The activity of "manager comes out to Gemba".

Make clear the company policy in everywhere with his words.

The graphs and charts of advance of KPI compared to the target in relevant gemba.

-4. Reestablishment of Basic Factory Management

Basic Factory Management: The control of Policy, Budget, Efficiency, Quality, Safety, Scrap Loss, Stock, PM, ST, and the concept of Daily Control, Visual Control and Target Control.

In the factory management and as a manager most important item is the Budget Control which is the milestone for planed company performance based on the certain technical support. For the budget planning it is necessary to have the planed cost, expected cost and actual cost. For the planed cost it is necessary to have the Standard cost of material, labor and the planed departmental cost. For planed and actual labor cost it is necessary to have the Standard Time. On the other hand in the budget it is essential to have the plan of development. This annual development action plan also needs to have the certain technical support.

I understood the problem of this excellent CEO which this factory had nothing of the base to discuss and decide the KPI with the targets and control factory.

It was very clear and quite natural that it was impossible to gain the sufficient result in both of actual performance and the management capacity in such condition. And my method which make the management frame and fit into it forcibly is excellent way.

I began to teach -1, -3 & -4 to the management side. And in parallel we made the approach of -2 in the gemba.

After the establishment of the Kaizen Conference which has the role of managing the Safety committee, 5S committee, Kaizen committee which has QC circle and

Suggestion Scheme & Quick response first of all the 5S committee was started for arranging the essential conditions which are the concept of "Whole People's Participation" and the Kaizen mind for other activities.

We began the activity of 5S for educating and bringing up the core leaders who should take their leadership in the activity of QC circle, 5S expansion. Also we expected the breed of the situation of "Whole People's Participation". In this meaning 5S was "Killing four birds with one stone". One is of course making the situation of 5S in the factories. One is the bringing up of leaders. One is the training of Kaizen. And final one is to bring up the concept of "Whole People's Participation".

And I'm writing the introduction of 5S in this column based upon the case of this factory.

Now the Training of Seiton continued.

I believe you remember the 3A (Assigned Location, Assigned Article and Assigned Quantity).

In the activity of KATAZUKE temporally you decided the locations of all equipment & machines and the location of materials, working areas.

-1. Map: (1) First of all please make the factories map. And in the layout map of individual factory draw the whole locations decided in KATAZUKE. (2) Consider the reasonableness of the placement of the locations in the working flow. (3) If necessary, change the placement in the map and also in the gemba. In the map of a factory, following items should be drawn. Shelves, Machines, Equipment (forklift, crane, conveyor etc.), Passage, Push car, Material, Production line, Material in line, Work-in-Progress in line, Finish goods in line, Defect product in line, Working area, Quarantine Area, Common use jig and area, Rest area, Entrance, Exit, Dangerous place, Fire extinguisher & Fire hydrant, Emergency aid equipment etc.

-2. Sign boards tactics: Make the sign board of Factory name, Department name, Line name, Process name, Entrance & Exit, Shelf number, Address & Placement number in the shelves and above -1 items and put them in.

(Example photos of line, shelves and process area, fire extinguisher as below.)

-3. Painting tactics-1: Paint lines in above areas, locations in following color standard. (Standard of my previous company)

-4. Painting tactics-2: Paint colors in the floors of above areas in following color standard. (Standard of my previous company.)

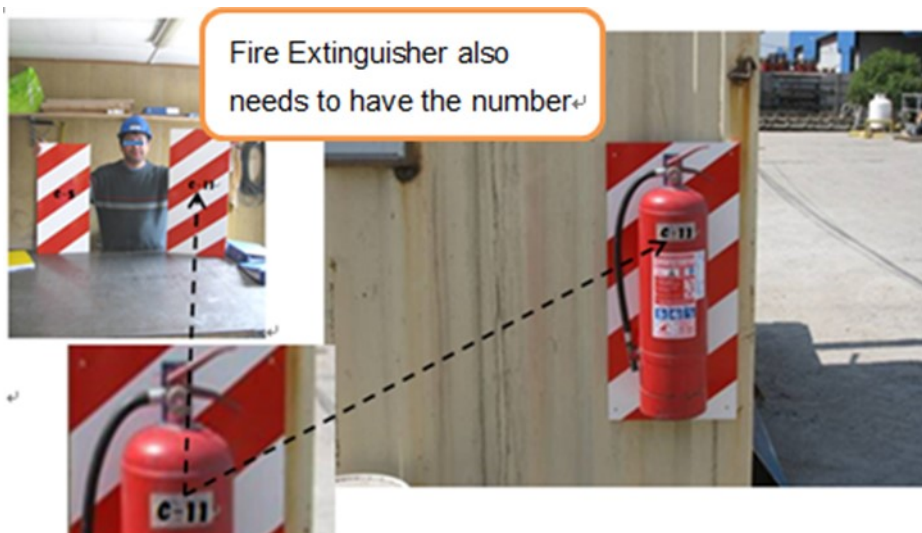
Classification	Color	Width (cm)	Line
Compartment Line	Yellow	10	Solid line
Line of Exit, Entrance	Yellow	10	Dashed line
Closing & Opening Door line	Yellow	10	Dashed line
Direction line	Yellow		Arrow mark
Yard of work-in-progress	White	5	Solid line
Area of working table	White	5	Solid line
Area of ashtray and other	White	5	Dashed line
Yard of defect pars, products	Red	5	Solid line

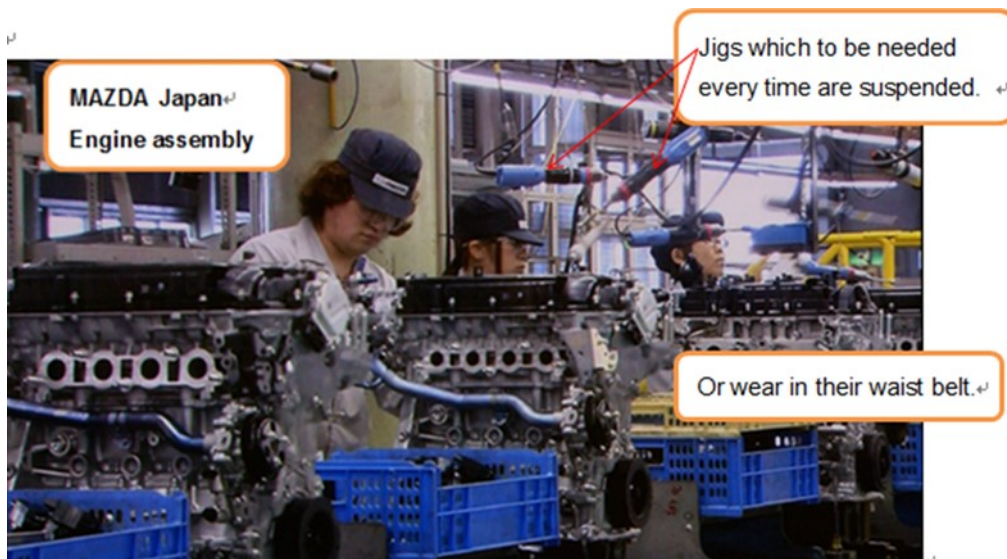
Working area and Yard	Green	Normal
Passage	Orange	Fluorescent color
Rest area	Blue	Normal

The case of the Mexican factory, they made and used their standard.

-5. Training of Put and Use & Back. The committee members made the presentation to their colleagues in the gemba with the map and asked their cooperation. And in the 5S check the members educated them. (More discussion in the article of Training of Shitsuke.)

Next I write the Training of Seiso.





27. 2-3. Training of Seiso.

Let's discuss the step of Seiso.

Seiso, it is indeed most bothering theme because Seiri and Seiton are not difficult to characterize rationale for control factory, but Seiso which is sweeping and clean up (beautifully) is emotional and based upon the Japanese national character.

For getting your good understanding I write some episodes.

Episode-1: Paris circumstances and the reaction of Japanese

Last week I saw a TV program which introduced the Paris circumstances. Paris is had the image of "The city of fashion and beauty and elegance" by most of Japanese. But it was identified that the people of Paris is not clean with following scenes.

Scene one: The people of Paris don't wash his and her head every day, but once a week. In the interview a gentleman appealed the itch of his head.

Scene 2: A husband helped and washed the dishes with sponge. And after washing dishes, with same sponge he began to clean the floor of the kitchen. Of course this family also doesn't have the custom to change the shoes in their house. And he might use the public toilet in the day and his shoes might be dirty. But he said his Japanese wife: I washed it and it is clean therefore it is no problem to use in both.

All of the Japanese commentator who saw these scenes didn't hide their surprise and said with one voice: What a filthy it is!

In fact Japanese wishes to keep clean physically and spiritually and washes the head daily and never uses the sponge in both cases of dishes and floor.

Chilean daughter

A few years ago one Chilean student stayed in my home. And one day she got the tap water of the toilet in a pet bottle to bring and drink. (In Japan the tap water is drinkable.)

When my wife saw the scene she chided not to use the tap water of toilet for drink.

Why? In fact whether the tap water of toilet or kitchen, there is no difference and is drinkable. But she chided the Chilean daughter. Japanese has the sense which a toilet is the impure place, even the toilet is clean physically.

In Japan the word "clean" has double characteristics which are physical and spiritual. But we need to think which is natural in the world. Of course the Paris circumstances and Chilean daughter are near to the world and Japanese mentality is quite unique in the world.

Now you need to understand that from such emotional fastidiousness disease, the concept of Seiso and Seiketsu were created.

Episode-2: Pika-Pika activity

Pika-Pika: Mimetic word of showing the situation of shining and glittering in polishing.

When I visited the Japanese factory after a long time, I was surprised the change. Not only the floor, wall, gamba room, maintenance area, but also all machines, equipment, everything were clean and shine. And I was required to put the shoes cover for avoiding the staining the factory.

It is understandable if this factory is the production of precision parts (In fact this company has the factories of precision components which require the clean room.). But this factory produces electric wire which has the process of Stretching & Anneal copper wire, bunching & Twist and Extruding & Winding. And normally such factory is dirty and

stained with copper powder & machine oil. But this factory was shine and clean and whole areas and machines were wiped and polished. It was indeed amazed.

This factory began the Pika-Pika Activity from 2 years ago as a part of 5S accomplishment.

Episode-3: The Japanese factory in Vietnam

The Vietnamese factory also intended to complement 5S. And I saw a strange bulletin board.

The board has the lines name in vertical axis and week number in horizontal axis. And in the squares the white gloves which were used by auditor (manager) were put. When the manager visits the factory he puts the white working gloves and touches everywhere. (Naturally the gloves get dirty.) After the plant tour (weekly or monthly) the manager gathers the Vietnamese factory managers and show the dirty gloves and declares "The level of management of your factory is this level and never sufficient".

Episode-4: HONDA

I have worked in HONDA SUZUKA factory as a chief of Design In activity, and from the beginning of work 8 o'clock to finishing of work 17 o'clock. HONDA worker uses the united working clothes which are white. Working clothes is white: It is quite unique and never natural in the world.

When come in the locker room, firstly any worker needs to choose the size and bring the white working clothes washed and change clothes.

And after finishing the work any worker needs to take off the working clothes and throws into the laundry box. These working clothes used are laundered by the department of laundry in the day and are prepared for tomorrow. (Of course pay free.)

Why white? Perhaps Souichiro Honda had the foresight of 5S. (Or was mere person obstinate?)

His philosophy was "Don't hide any dirt and be come to the surface".

Can you understand and accept these true stories? Or do you think it is ridiculous?

I wrote that 5S hasn't direct effect to go up the human productivity, or rather go down.

Once again, Seiri and Seiton are possible to implement with no additional man-power in the mechanism. But Seiso requires the additional man-power depending upon the degree.

Any company including TOYOTA who implements 5S includes Seiso in the real working hours like as one of investment. For instance 10 minutes Seiso, 8 real working hours equal 480 minutes and 10 minutes means 2% efficiency down.

Now I ask you: Can you invest 10 minutes Seiso (2 % in the case of 8hours real working hours) to maintain the condition of the factory control?

Can you accept the situation of dirty machine of following picture? The floor of passage is very clean and shining. But the automatic machine is dirty with the shavings. This automatic machine has the product defect of 3% and it is not possible to call "Automatic Machine". I believe you can't accept it also. If you can't invest 10 minutes Seiso time all day, how much time (minutes) can you accept for Seiso? Or conversely within 10 minutes how much degree can you clean your process daily?

(Story is deviate) In another column of "5S expert", there is a discussion with the title of "5S quiz". And most of the opinion is the importance of top manager's commitment. It is quite natural answer. And the important point is how the top manager commits to the activity of 5S.

The way of top manager's commit is not the patrol of 5S daily or weekly or monthly, but acceptance of the Seiso in the working time as one of important job. Such as 5S patrol is the job of the factory manager and/or supervisor class.

Top manager who can go to gemba in once a while needs to look from higher level point of view (Safety condition, Situation of machine working & flow of process & worker & material flow, quality situation in gemba graph---).

I wrote "It is most bothering theme. Seiso which is sweeping and clean up (beautifully) is emotional and based upon the Japanese national character".

Emotional? What is and how measure the level of "beautifully"? It is not possible to decide because of the difference of the personnel sense.

Therefore the case of the Vietnamese factory measures the degree of Seiso & Seiketsu in the trend of dirt of white gloves. By the way Japanese 5S gave the rationale to Seiso as below.

The purpose of Seiso is not only to maintain the comfortable workplace, but also the condition of which the jigs, materials, machines & equipment can be used at any time and precisely.

And the underlying reasons are (1) in the place where there is dirt, there is something bad cause. (2) Dirt calls dirt and hide problems. (3) Dirt calls the carelessness and bad habit.

Seiso is an inspection: One of theory of TPM. Seiso is one of important base of TPM. And I say that Seiso is one of process which searches the problems in the machine.

(See photos below)

Next I write the Training of Seiso continued.



Floor is kept clean & shiny.↵
But the machines are dirty. Where &
what are the objects of Seiso? ↵

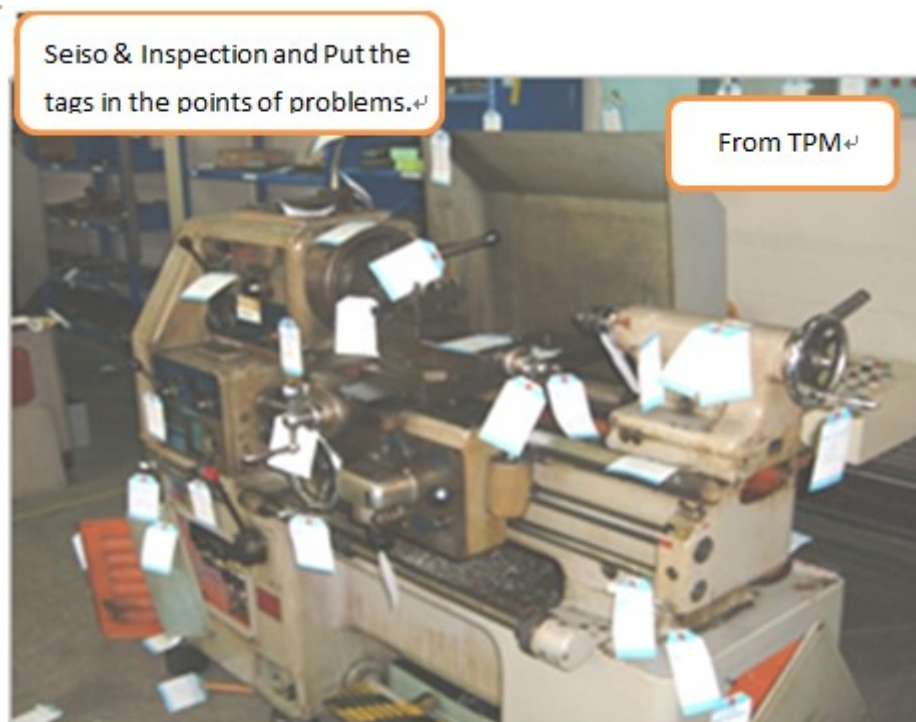


Dirt with shavings↵
Is this machine possible
to work precisely?↵



Machine Seiso Activity↵

From TPM↵



28. 2-3. Seiso training

For implementation let's take following steps.

-1. Deciding the objects of Seiso -2. Deciding the turn of duty, -3. Standardizing the method, degree and tools, -4. Implementation of Seiso

-1. Deciding the objects of Seiso

The objects of Seiso, there are 3 areas in classifying large. One is place of articles which are warehouses of finished products and parts & materials, area of work in progress & parts & materials in process, shelf of jigs & tools including measurement tools. One is machine & equipment including dies, vehicles, transport equipment, working table, cabinets and other fixtures. And one is space of which are floor, working area, passage, wall, pillar, ceiling, window, meeting room, rest area, toilet. Following Check List which one group decided their objects shows the check points in 3 large classifications. The objects of daily Seiso are 15 points, and weekly and monthly are 10 and 5 individually.

Factory		Fabrica	
Date:		Fecha:	
Seiso Check List		Lista de Chequeo de Seiso	
1 Place of article		1 Lugar de artículo	
No	Points of check	No	Puntos de chequeo
1	Remove dust & dirt from finished goods, materials and parts.	1	Elimine el polvo y la suciedad de los productos terminados, materiales y piezas
2	Remove stain of parts cut & washed.	2	Elimine las manchas de las piezas cortadas y lavadas.
3	Remove dust & dirt of place of stock.	3	Elimine el polvo y la suciedad del lugar de stock.
4	Remove dust & dirt of place of work in progress.	4	Elimine el polvo y la suciedad del lugar de trabajo en curso.
5	Remove dirt of movement pallet.	5	Eliminar la suciedad de tarima.
2 Machine & equipment		2 Máquinas & equipment	
1	Remove oil & lubricants dust of around the machine, equipment.	1	Eliminar aceites y lubricantes de polvo alrededor de máquinas, equipo.
2	Remove water, oil & lubricants and trash under machine, equipment.	2	Eliminar agua, aceite & lubricantes y basura debajo de máquina, equipo.
3	Remove dirt of oil & lubricants and dust on machine, equipment.	3	Eliminar suciedad de aceite & lubricantes y polvo en máquina, equipo.
4	Remove oil dirt and dirt marks of machine side and cover of control panel.	4	Eliminar suciedad de aceite y suciedad por manos en máquina y cubierta del panel de control.
5	Remove dirt of oil gauge, pressure gauge and others.	5	Eliminar suciedad del indicador de aceite y de presión y otros.
6	Remove dirt & dust inside all of cover and lid.	6	Eliminar suciedad y polvo dentro de todos cubiertas y tapas.
7	Remove dirt, dust, trash and oil on electric wire & air pipe.	7	Eliminar suciedad, polvo, basura y aceite en alambre eléctrico y tubo de aire.
8	Remove dust, dirt and oil on limit switch.	8	Eliminar polvo, suciedad y aceite en limit switch.
9	Remove dust & trash on phototube.	9	Eliminar polvo y basura en tubo fotográfico.
10	Remove oil dirt, trash and dust of moving part in machine.	10	Eliminar suciedad de aceite, basura y polvo de partes.

I like to use check list for avoiding the variability of thought & image.

This company applied the Cleaning Promotion Month as one part of 5S activity. And this check list was used and showed the objects of Seiso in the factories.

-2. Deciding the turn of duty.

It is necessary to decide the turn of duty and make clear the responsibility of Seiso activity.

By whom these objects are cleaned? The members of this activity are of course all factory worker (operator, maintenance operator, warehouse ---).

And please decide by yourself in the objects of above check list accordance with the condition of your company.

By the way when deciding the responsibility and turn duty, please don't forget the discussion with the union (if you have). When I was in US and introducing the activity of Seiso I have had the resistance of the union of sweeping ladies which in this company there was the union. And when we decided the role and turn of duty of factory employees, the floor, toilet, rest area, steps --- also shared to the factory workers which means to rob the jobs of the sweeping ladies.

In Mexico also there was the union.

Therefore please don't forget the dialog with union.

The activity requires the participation of all employees and is the one part of regular job to the last.

-3. . Standardizing the method, degree and tools

I recommend to use the visual aids with photos (Where, by whom, which tools, how and degree).

Seiri & Seiton of Seiso tools

Seiso tools also the objects of Seiri, Seiton and Seiketsu. (One photo below which shows the example of Seiri, Seiton of Seiso tools.)

Seiso tools also the objects of maintenance (Seiketsu: the condition which is possible to use properly at any time.)

-4. Implementation of Seiso

I wrote 10 minutes Seiso every day and said that within 10 minutes how you can clean. Now the objects, role and turn duty (share the job) and also the method and degree are clear. Seiso activity also one part of regular job and the subject of efficiency control. Firstly we start the activity in 10 minutes and never over the 10 minutes for getting good support of managers. And it is necessary to make effort to reduce to 5 minutes Seiso with no decline the quality of Seiso.

A company in Mexico had the Seiso Tactics Day by all (including the top managers) which is one of good idea to foster the condition of "Whole People's Participation" once a year instead of the normal 5S activity.

However I don't like this idea. If the top manager wishes to foster the whole people's participation he can choose the place and occasion and can participate to the daily Seiso in his fine convenience. Seiso in the 5S activity shouldn't be done in batch process of specific day, but daily activity continued.

Next I write the theme of Seiketsu Training.

29. 2-5. Training of Seiketsu

Before going to this theme, I wish to respond to the basic question why Seiso is necessary to maintain the factory management from my student.

He said: it is understandable the importance of Seiri and Seiton. But even if the area, the production line and the machines are a little dirty it is not so serious problem for the purpose of 5S activity. Also as you said Seiso is costly.

In fact this question is truly important and the core question. If you can't understand this, it is not possible to maintain 5S activity, even though starting it.

Why Seiso is necessary? Is it acceptable to be a little dirty in the machine?

Once again I write the purpose and importance of the Seiso activity. In the column 27 I wrote the purpose of Seiso as below.

The purpose of Seiso is not only to maintain the comfortable workplace, but also the condition of which the jigs, materials, machines & equipment can be used at any time and precisely.

And the underlying reasons are (1) in the place where there is dirt, there is something bad cause. (2) Dirt calls dirt and hide problems. (3) Dirt calls the carelessness and bad habit.

Seiso is an inspection: One of theory of TPM. Seiso is one of important base of TPM.

And now for this question I answer from 3 other sides.

One: Bring up of the concept of "Whole People's Participation"

Please remember the activity of this Mexican group. At this time this group made questionnaire to the workers of the factory. And in the questionnaire there was one question when and why you can feel the participation to 5S activity? And the result was that the common workers could feel the feel of participation in KATAZUKE and Seiso especially, and in Seiri & Seiso were very minor. The common workers feel that Seiri & Seiton (After the KATAZUKE which is participated by all) are passive activity and KATAZUKE and Seiso are active activity by their own sense.

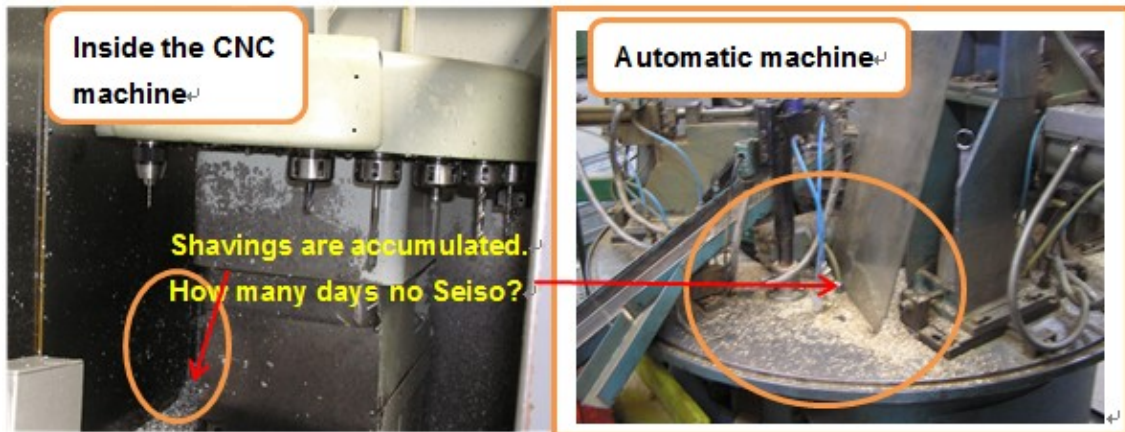
On the other hand I wrote many times the word of "Whole People's Participation" which the concept is essential for not only the maintaining 5S condition, but also as one of base of factory control, Kaizen and development (TPM, TPS, TQM ---).

Seiso requires the direct participation of the workers. In this fact I can say that the Seiso activity can bring them up the sense of "Whole People's Participation".

Two: The dirty machine, process, space --- relate to the loosing of discipline. In Japan it is quite common that the factory has the full length mirror to check the disorder of the working clothes in the entrance. Keep clean & Seiso by all can maintain the moral & discipline.

In one and two I believe you can understand the importance of Seiso. Now the theme of "A little dirty" is acceptable or no.

Three: A little dirty? How is the grade of "a little dirty"? What or where is a little dirty, space or machines or materials or floor? For maintaining the 5S it is necessary to make the clear Standard and "A little dirty" can't be the clear standard. For instance machine, next photos show the dirt of machines.



In fact the precision of these machines were so bad. The defect ratio of the automatic screw making machine (left hand side) was 3%. The common workers didn't think that the situation was bad, because there were not fatal breakdown even though the defect ratio of the automatic machine was high. Even though saying that these machines are dirty in common sense, during the fatal machine down or fatal defect not to be occurred, they can't recognize the degree of bad situation. On the other hand, how is the level of "a little dirty"? Is it the level of every day Seiso or each 2 days or one week? The true character of dirt is mainly the shavings, dust, oil, lubricant and gives the trouble to the machine.

Now is it possible to identify how many days in no Seiso could be acceptable (no giving the problems to machine)? Perhaps depending upon the machine, products, materials and production days the answer is different and it is not possible to standardize. And even though the complicated standard is possible, it is not possible to keep by the workers. Therefore "A little dirty" is not acceptable. And the standard should be decided objectively in visual aid with photos (or white gloves or Pika-Pika as the episodes). Also my recommendation is to standardize the frequency of Seiso activity depends on the part like as the Seiso Check List.

Now Seiketsu

In foreign countries I have taught 6S (Seiri, Seiton, Seiso, Seiketsu, Shitsuke and Shukan which is the standard of my previous company).

And after the introduction of 3S, I added the training of Shukan which means to make 3S a custom in their gemba. I don't address Shukan (Custom) in this 5S column, but it is important to make 3S a custom of whole workers.

Now I describe the voice of a worker in the gemba: Even doing Seiri, Seiton and Seiso, there is no end! After Seiri, soon occur the unnecessary articles.

For this complaining we need to respond clearly and also need to have countermeasures. If not, the structure of 5S will collapse easily.

Firstly we should persuade and ask to workers to maintain 3S like as his or her house (housekeeping).

On the other hand we need to find the countermeasures for easier 3S.

Seiri, it is the activity of Separation of necessary and unnecessary articles in the time axis standard. Yes it is necessary to separate after the occurring unnecessary articles.

Seiton, it is the issue of in where and how to put the articles. Also it is the activity of after the articles to be in a state of litter. Seiso, it is also the activity of after to be dirt. Now you understand that the activity of Seiri, Seiton and Seiso are all of the work of catch-up.

In this column Seiketsu, we discuss the scheme which no occurrence the unnecessary articles, reduce the opportunity of take and return, reduce the necessity of cleaning & sweeping. And I need to have your good understanding of the concept of Preventive Seiri, Preventive Seiton and Preventive Seiso which are that before occur the situation of untidy or dirty or the unnecessary articles in the place, it is required to investigate the root causes and eliminate or reduce the occurrence of these. Seiketsu is the mean of the maintaining the situation of Seiri, Seiton and Seiso in any time (even though in the working time.)

Preventive Seiri

When considering this theme let's concentrate the case of parts, materials, work in progress and finished products, because these cases are difficult and the cases of tools and equipment are easy.

Why do the unnecessary materials, parts or work in progress occur? Always Gemba has the problems of line balance, production change, defective materials & products, machine down, material shortages, absenteeism, design change, ---. And in these irregularities cause the occurrence of unnecessary materials, parts --- in gemba. (See the photos below.)



Pressed parts from the press process
 In an ordinary company, quite often we see such situation which the work in progress is put temporarily in the passage. According to the factory manager, the number of this lot is more than one month to the demand.
 But why does the press process make so large quantity? Is the lot of production schedule so large? The exchange die is so difficult and takes so long hours? And the press machine is so busy? Anyway it is necessary to reduce the batch size.



The mountain of defective press parts made by the press process
 The factory manager intended to reuse to other parts which use the same material. But this lot was so old and wasn't possible to reuse.
 Why so large batch size? The activity of SMED is required? Again is this press machine is so busy? The case of this company was both no, but just the bad habit. Anyway please make the effort to minimize the production batch size firstly.

In the column of Seiri, I wrote the use of "Double Bottle System" as one kind of standard of necessary material like as the KANBAN. For Preventive Seiri finally it is necessary to pursue the thought of TPS (Lean) and pursue following matters for preventing the occurrence of irregularities.

- Batch production to One by one production: minimize the production lot.
- From Push to Pull system: Stop the unnecessary production and sending to next.
- From Single process production to Line production: Reduce the work in progress.
- From Batch production schedule to Heijunka production schedule.
- Creditability of process: Creditability of machine, workers, materials and parts to reduce defects and shortages and eliminate the line stop.
- Creditability of supplier in parts & material inspection.

It is indeed the system of TPS, and I stop the writing of this column, because it is impossible to implement by ordinary company. However I recommend even just to make effort to reduce the production batch size. Anyway please understand the concept of Preventive Seiri and make the awareness of workers.

Next I write Training of Seiketsu (Preventive Seiketsu)

30. 2-5. Training of Seiketsu (Preventive Seiton)

Before going to this theme I wish to respond and advice to my friends regarding the method of the evaluation in 5S, 4R or Seiso check lists. I recommend to use the 1,3,5 evaluation.

(1: Bad or Poor. 3: So so (middle). 5: Sufficient or Excellent) And in the occasion of getting lost the judgment of (for instance) 1 or 3, 2 is used. In this evaluation you don't let them use "5" lightly, because "Sufficient or excellent" means no room for any improvement and the stop the awareness of Kaizen. And at this time the superior is required his leadership which advises that improvement points are infinite. (Even the factory of TOYOTA doesn't have the score 5.)

When evaluating a factory or the target area, don't make the partial evaluation, but overall. In the factory or area, they have good and bad points to the individual item of evaluation. Then as the total the score of evaluation should be decided. The members of the evaluation should take the photos of bad points as the suggestions and record in the column of comment in the check list. I posted the examples of the check lists but recommend making your own check lists to suit your factory and also recommend reviewing the checking points and seeking higher level check points.

I think the concept of Preventive 3S is not so old. When I was taught the TPS (more than 40years ago) by Toyota members the meaning of Seiketsu is to keep the condition of 3S at any time in devising the ideas.

Now Preventive Seiton

In the factory there are 2 large categories of things which are the causes of disturbing Seiton.

The things of one category are the materials, parts, work in progress and finished products. The things of another category are the tools, equipment and dies.

Anyway reduce the things which shall be the cause of disturbance of Seiton in the factory.

For Preventive Seiton of Materials--- the countermeasures are as follow.

-1. As I wrote the materials, parts, work in progress and finished products should be reduced in the effort of (as an example) "minimizing production batch size".

-2. 3A on the floor: On the floor mark 3A (Assigned Articles, Assigned Quantity and Assigned Location) clearly with colored line, area and visual aid (standard)

-3. Regulation of In &Out: for instance when and how many of the materials and parts to be provided in the assigned location, and when the finished products to be carried to warehouse. These motions should be standardized in the time axis.

For Preventive Seiton of Jigs, Tools and dies

The things of this category have the characteristic of “return after use”. And the movement of a worker who needs to use them is “go & search the necessary jig or tool or dies – take and use it – return to the assigned location”. Therefore we need to reduce the opportunity of these movements in the consideration of IE (Industrial Engineering) and also create the ideas for better visibility.

For practicing Preventive Seiton of these tools, jigs and dies, I recommend following steps.

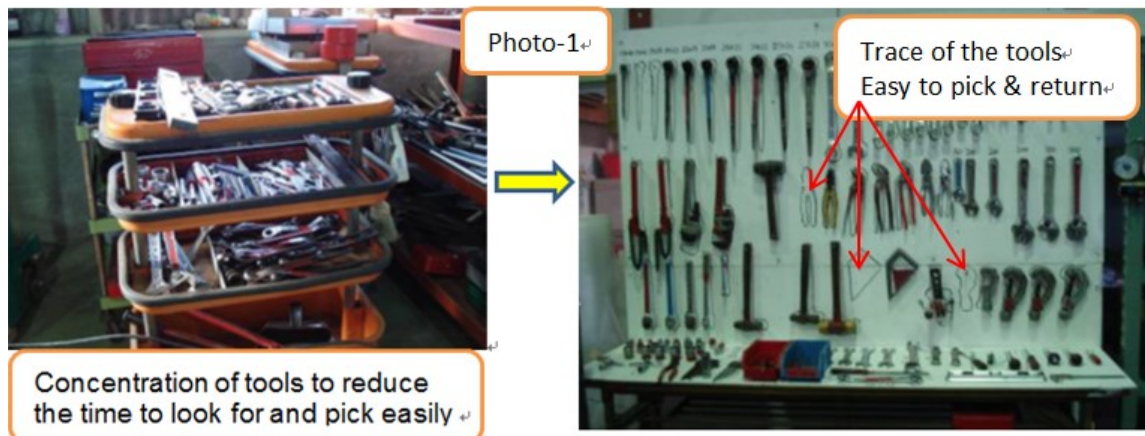
- 1. Completion of the concentrated control (look at the photo-1, 2)
- 2. Use the color code for 2A (Assigned Article & Assigned Location, look at photo-3)
- 3. Easy pick and easy return (look at photo-4)
- 3. Spread control: Tools & jigs in the line or in the machine (look at photo-5)
- 4. Hang for free to return (look at photo-6)
- 5. Tool less & jig less: Devise not to use the jig & tool and/or multipurpose jig or tool for reduce the number.

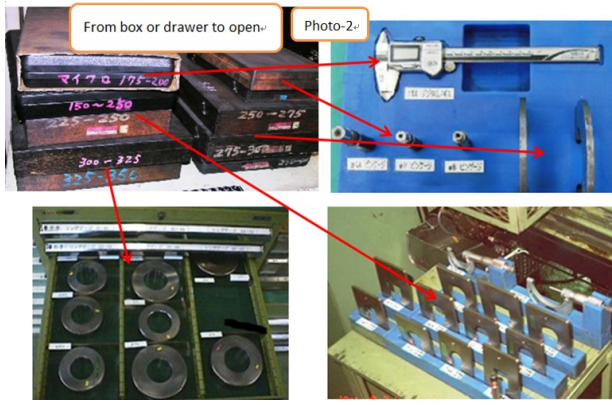
I recommend implementing these steps one by one (but of course if possible implementing at the same time).

Next I write the Seiketsu of Preventive Seiso.

By the way

I'm going to the short business trip to the 3 countries in Europe two weeks. Therefore there is no description next week.





From box or drawer to open

Photo-2



Photo-3

Clear 2A (Assigned Articles and Assigned Location) 9 with color code

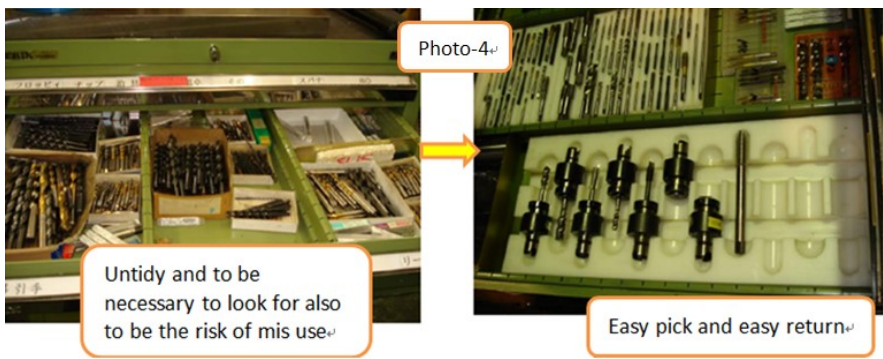


Photo-4

Untidy and to be necessary to look for also to be the risk of mis use

Easy pick and easy return

Control of spread jigs & tools in each machine
The tools & jigs which are special and/ or cheap are equipped in the machine directlv.



Fixed tool box in the machine

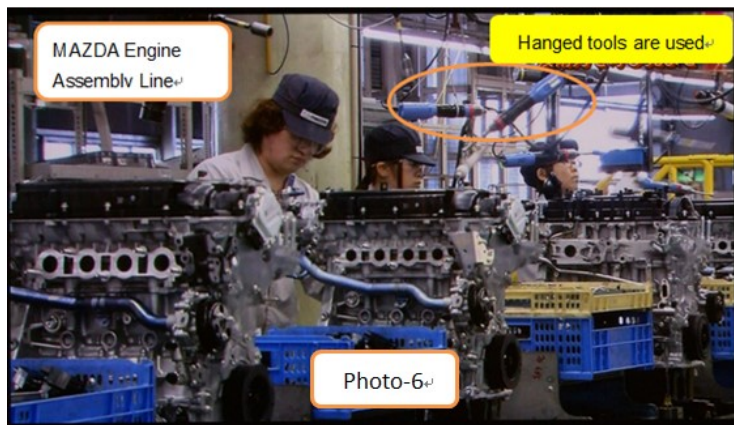


Turn to use



Pull the drawer

Photo-5



31. 2-5. Training of Seiketsu (Preventive Seiso)

Last week I came back from the 2 weeks business trip in 3 European countries (Spain, France and UK) and resume the description of this column.

Before going to this theme I wish to respond to one question as usual (during my business trip there were some questions).

The question: does the activity of TPM (Total Productive Maintenance) require the implementation of 5S? And the answer is "No".

For explaining this, I introduce this conference in Manchester held by a consultancy firm within the permissible range. To this consultancy firm I've been teaching Japanese techniques 10 years and my main purpose of this business trip was to attend this conference.

This consultancy firm got the requirement of productivity reform from the customer in France.

(1) Decision of the conference. Implementation of TPM

After the investigation of this client of over 4 months, the conference were held to decide the way, process and methods at Manchester in UK. Then the conference decided the implementation of the activity of TPM (Total Productive Maintenance and Total Production Management). In the conference the introduction of TPS (Lean) also were discussed because of the scale of this client company. However finally the activity of TPM was decided because the capacity of this company is still not enough to introduce TPS and if try it more than 6 years continuous coaching are necessary.

And in the meeting minutes some parts of TPS which are Partial Kanban, One by one production flow, SMED, Production Planning in Yamakuzusi (partial Heijunka) were recorded to implement.

Why TPM and not TPS.

TPS: the supply chain with customer and supplier is required, even though just internal TPS to be targeted, still more than 6 years coaching are required.

TPM: just internal activity and 4 years coaching are estimated.

(2) The path of achievement of TPM (outline).

-1. The step of preparation

-Presentation and confirmation of the path by the consultancy and agreement by the client.

-TPM study to top, managers and supervisor & foreman individually.

-Establishment of the project organization (Previous period and Late stage) and nomination of project members of previous stage.

-Declaration of Kick-Of by the president

-2. Upgrading of Basic Factory Management

The contents of Basic Factory Management: Policy control, Visual control, Daily control, Target control, 5S & 4R, QC, Inspection system, PM (Preventive Maintenance), Arrangement of KPI (Key Performance Index), Standard Time & Efficiency control, Material control & handling, Education & Motivation system, Evaluation system, QC Circle, (Suggestion Scheme)

-3. Upgrading of total management system: Making annual budget & control system, Information transmission system, Responsibility & authority & delegation, Financial statements & KPI, 3 important meetings (Management meeting, Quality meeting and Production meeting) etc.

-4. PM (Preventive Maintenance) reestablishment

Originally TPM (Total Productive Maintenance & Total Production Management) is the concept and the logo of the activity of DENSO.

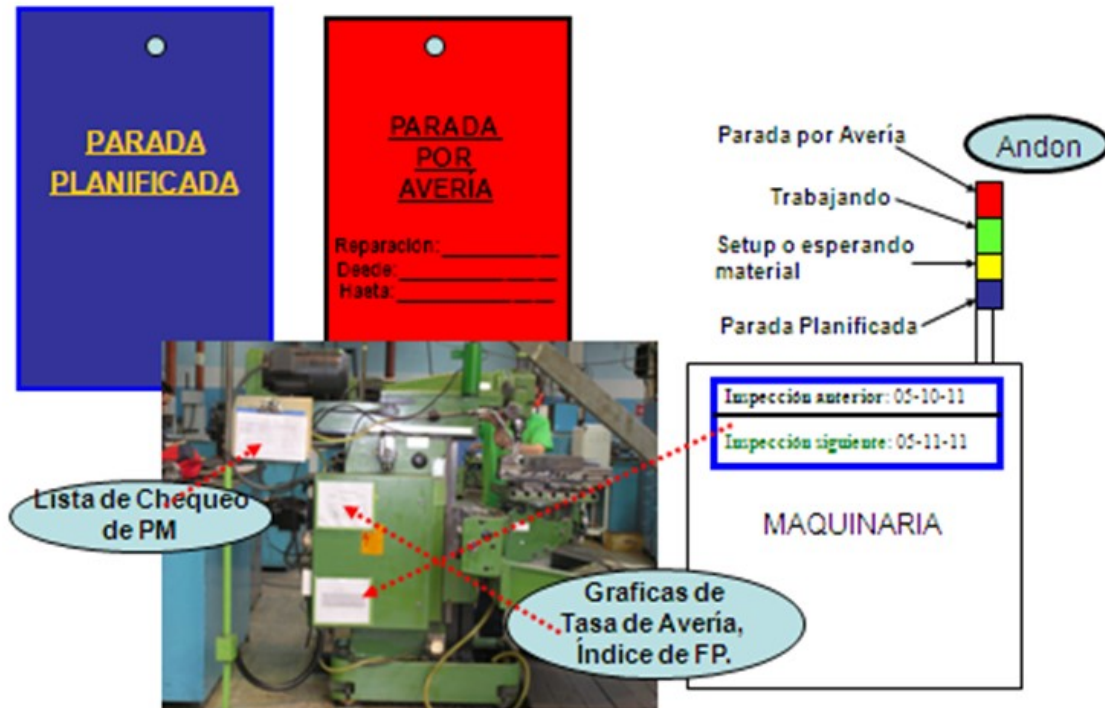
DENSO also firstly tackled the sufficient level of PM. And after the sufficient level of PM he implemented the TPM (Total Preventive Maintenance). And then he expanded the wider activity targeted the 0 accident, 0 defect, 0 machine break down and also 0 loss in the concept of "Whole People's, Department's and Class's Participation".

For reestablishment of PM following items are necessary.

-Necessary KPI: Machine operation ratio, Machine efficiency, Machine speed efficiency, Machine break down ratio, Machine stop frequency Index, etc.

-Standard: Regular check & maintenance in each 6 months. Overhaul after 8 years of purchase. Standard & QC process chart of regular check and maintenance, Visual control in individual machine (see example attached).

Control Visual en Maquina



In parallel with the coaching of Basic Factory Management, coach the PM to the project team.

-Reestablishment of the organization of PM: Skill & training program of engineer, number of engineer & organization, necessary machine & equipment and tool, spare parts & stock control and cost reduction.

-Model machine activity.

-5. Implementation of TPM (Total Preventive Maintenance)

As the next step, the coaching of the TPM activity will begin with the concept of "Whole People's Participation".

-Training of simple maintenance to operator

- Standard of simple maintenance, visual aids, Training & skill level evaluation diagram.

-Maintenance Check List (Daily, Weekly and Monthly) by operator. (See example attached)

Ejemplo de Lista de Chequeo.

Lista de Chequeo de Colector de polvo No.1	Mes: JULIO	Nombre de línea: HA-30	Nombre de Cargo: F. Finca								
Artículo de Chequeo	1	2	3	4	5	6	7	29	30	31	Artículo de Comunicación
A Brea nivel de aceite de metal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				<input checked="" type="checkbox"/>
A Olla acceso de tefre de metal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>				
B Olla rizado	<input type="checkbox"/>										
A Brea en freza de absorción.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>				
B Brea o fracción de cobertura segura	<input type="checkbox"/>										
B No cubren el gas todo.	<input type="checkbox"/>										
A No debe narse polvo a tierra.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>				
Firma de jefe de línea											
Periodo A: Cada día, Antes de trabajo.	Censo Memorable										
B: Finés.											Firma
Modo O: Normal											Jefe:
7: Requerimiento de inspección.											Jefe de línea:
X: Anormal.											Cargos:

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Lista de Chequeo de máquina

Nombre de Máquina: M	Mes: JULIO	Sección: Línea H2 - 20							Nombre de Cargo:			
Artículo de Chequeo	Periodo	1	2	3	4	5	6	7	29	30	31	Andación
No hay aflojamiento de fuerza de poles.	A	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				5
Normal funcionamiento de interruptor	A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Normal funcionamiento de limitación	A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Buena condición de aceite lubricante	D	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
No hay herida en conexión de carga.	B	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Normal funcionamiento de indicador.	A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
No hay temblor de la máquina.	A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Firma de Cargo												
Firma de jefe de línea												
Firma de jefe de sección												
Periodo de inspección:	Modo	Andación										
A: Cada comienzo de Trabajo	O: Sin problema.	05 (Jul): Mal funcionamiento y Cambio de limitación										
B: Cada fin de Trabajo.	▲: Mantenimiento, Reparación.	06 (Jul): Chequeo y ajuste de temblor										
C: Hora.	X: Reparación, Mejoramiento.											
D: 15 minutos.												
E: Finés.												

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- Machine clean up activity: One part of education and Problem searching, Oil path diagram by operator.
- Preventive Maintenance and Preventive Recurrence.
- Bulletin board (Sharing of information)
- 6. TPM (Total Productive Maintenance and Total Production Management)

-Budget planning system and target cost reduction planning

-Action Plan of each project for the achievement of the budget (Project of 8 pillars for 0 accident, 0 defect, 0 machine down and for 0 loss)

-QC Circle & Small group activity.

TPM is not a system like as TPS which has certain system of Kanban, Heijunka, but a guide line of thinking and a concept. Therefore TPM doesn't mention the certain way or method.

(3) Now 5S

As might be expected, there were not the any discussion and suggestion of 5S pre-implementation such primitive talk at all.

-1. Once again the effect of 5S implementation

5S activity is effective not only for physical effect such the basic condition of visual control, reduction of working loss and safety, but also helping to foster the good corporate culture including such "Whole People's Participation" and Kaizen mind.

I prefer coaching 5S to bring up the leaders, Kaizen mind and Kaizen training also arrangement of factory condition. But---

-2. 5S is never the Ace of Spade.

Several times I wrote in this column that 5S is not the Ace of Spade and never almighty, but mere one of tools of factory management. 5S is neither sufficient tool nor essential tool and nor the base of 8 pillars of TPM, but one of useful tool.

-3. In just 5S activity, is it possible to bring up the good corporate culture including Kaizen mind and the mind of "Whole People's Participation" which are essential base of TPM?

5S is good tool but the answer is "No". With just 5S activity it is not sufficient to foster.

So for fostering the good corporate culture what are necessary conditions?

The examples of necessary items are Policy control, Condition of visual control, Graphs & Charts in gemba, Target control & delegation to individual, QC Circle, Small group activity, Suggestion Scheme, Education & Training, Evaluation system, KPI & Bulletin board, Special activity month (Quality month, Safety month, 5S month, Disaster prevention month,

Environment month---) & logo & poster, Internal newsletter----

With through such activities, it is possible to bring up the corporate culture including the concept of "Whole People's Participation".

I did all in my previous company but never say that it is necessary to implement all things. But at least the items of basic factory management should be implemented.

-4. My concern

Why do I write this? I have the concern which many people are convinced that just the implementation of 5S gives the sufficient condition for the implementation of TPM and neglect the necessary arrangements (basic factory management). And also (It is never bad idea to implement 5S as advanced preparation for TPM.) for this advanced preparation spending months is waste the money, the time and timing.

Once again 5S is neither the base nor the essential condition for the activity of TPM because the activity of TPM itself has the same function of 5S such cultivating good corporate culture.

Following photo is a factory of my friend which already has implemented TPM (Preventive) after the sufficient level of PM. But he didn't make the pre-5S activity.

The gemba looks like very tidy, but makes just daily normal katazuke & clean up in the common sense.

If the company is normal, he practices even daily clean up as the common sense. And it is no necessary to implement the pre-activity of 5S for starting the activity of TPM.

Next we will go back to the discussion of Training of Preventive Seiso in Seiketsu.



This medium-sized Japanese company of these photos doesn't implement the activity of 5S in particular.↵
And the workers in the gemba don't even the meaning of 5S.↵
But this company implements the TPM (Total Preventive Maintenance) sufficiently.↵

↵

32. Training of Seiketsu (Preventive Seiso)

The meaning of Seiketsu is to maintain the condition of 3S and to devise the ideas for maintaining. In this theme I'm writing the activity of Seiketsu in the concept of "Preventive 3S" and have finished the description of preventive Seiri and preventive Seiton. Now I write the preventive Seiso.

By the way as I wrote Seiri and Seiton are possible to implement with no additional cost because the time of the random act of pick & put or return of necessary articles is same to the tidy act and even though the Seiri and Seiso are begun newly the additional cost isn't required. But the activity of Seiso requires the additional cost because the activity requires the clean-up of additional area such as inside the machine, hidden parts where haven't been covered by the work of clean-up.

The act of Seiso (Clean-up also same) doesn't give any added value to the product, but Seiso is absolutely necessary. For instance if 8 net working hours and if the initial stage of 5S introduction, it is necessary 10 minutes or more minutes of Seiso, the 10 minutes equivalent to 2 % of working efficiency down. And the time of Seiso should be minimized in no reduction of the quality of Seiso.

Now please remember the case of the group of the Mexican factory. I have made following conversation with the committee members.

Why the act of Seiso is necessary? Because dirty. What is the cause of dirty? Is there something devise of prevent dirty or ideas of easier clean-up or elimination of the act itself?

The main dirt in the factory is dust, mud and trash from outside, scrap, shavings, oil & lubricant. To my question the group made the discussion with their line workers and got many suggestions. I show some ideas which were implemented in the factory.

(1). Working table

-Vacuum dust collector: even though happened, collect automatically. (Initially it was implemented. But the idea wasn't expanded to all because of the cost, but in the machine.)

-Trash hole (up right of working table): even though happened, easy to collect trash. (Implemented in all area instead of the idea of vacuum)

-Kit of Seiso on the side of table: easy practice of Seiso.

-Chute in hand press: collect automatically. (Scrap is not trash, but money.)

(2). Machine

-Vacuum in machine: even though shavings are happened, collect automatically.

-Oil-spill containment boom: collect oil & lubricant. (Implemented in all machines which use oil or lubricant to the work)

-Local cover (Part cover): to prevent the scattering of oil or lubricant and shavings: Prevention of scattering which is the cause of machine trouble in TPM.

(3). Floor

-Mattress in entrance: Prevent the bringing dust.

-Brush in push cart: Working and sweeping.

-Change shoes in factory: Prevention of bringing dust (Not implemented.)

-Brush in tires of forklift: Prevention of bringing dust.

-Brush in forklift: Working and sweeping.

Then as you understand from these ideas it is possible to categorize in 3 steps.

First step which is most primitive stage: After dirt practice the clean-up.

Example of: Trash hole, Kit of Seiso

Second and category 2: Work and clean-up or gather the dirt automatically.

Example of: Vacuum dust collector, Chute, Vacuum in machine, Oil-spill containment boom, Local cover, Brush in forklift.

Second step and category 3: Eliminate the act itself.

Example of: Mattress, Brush in tires of forklift.

Once again the act itself of Seiso doesn't give the any added value to the product, but is necessary. And it is important to reduce the time of Seiso with no reduction of Seiso quality. But with very simple ideas of workers in gemba, it is possible to minimize. This activity is Preventive Seiso.

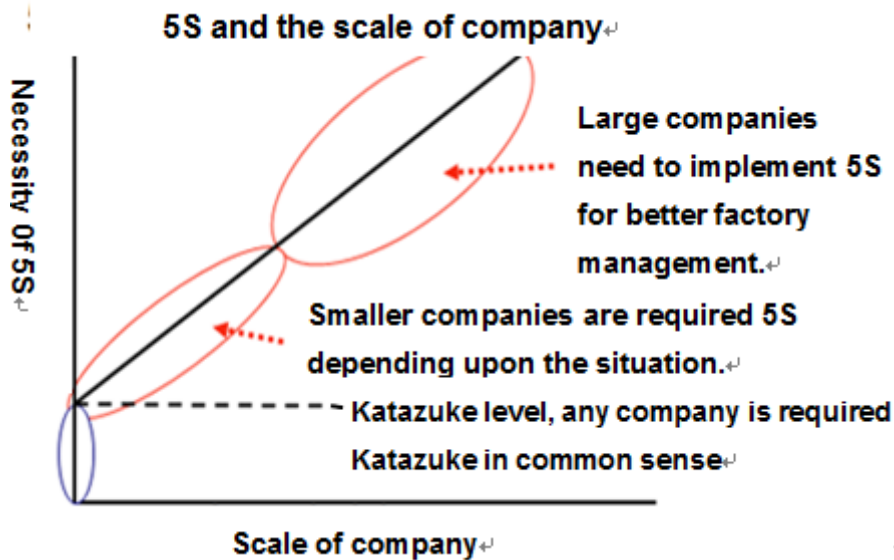
By the way

I wrote my concern last week which "many people are convinced that just the implementation of 5S gives the sufficient condition for the implementation of TPM and neglect the necessary arrangements (basic factory management). ----"

And I wrote that 5S is never the Ace of Spade and almighty, but mere one of important tool or condition of factory management. Then the implementation of 5S also needs to have the purpose why do you need to implement it. And it is not always that 5S is necessary at any time.

I introduce a case of equipment process industry.

Now do you remember the graph which vertical axis shows the degree of the necessity of 5S and horizontal axis shows the scale of the company or factory (See the graph below.)?



In general terms, when the company becomes large, the number of machines & equipment and employees increase and the difficulties of factory management also increase. And 5S becomes an essential matter. But even though large company and has many machines & equipment, there is a case of no necessity of 5S activity for the TPM.

When I was in Chile, I was invited by a large and famous company (in Chile) which intended to begin the TPM (Total Production Maintenance & Total Production Management) activity. And the project leader required me to help the pre-activity of 5S. But I suggested him 5S pre-implementation not to be necessary and undertake the planning of TPM soon. However he insisted to the pre-implementation with the path of 5S model line and one by one line introduction in one year.

Then I suggested to implement a campaign of 5S (Actually Katazuke activity) in 3 months and explained that in the case of his factory 5S is no necessary. But still he insisted the one year 5S introduction. (And I draw my hand from the company because of the time limit of my job in the country).

Why it isn't necessary? The factory has machines & equipment in the process which from the raw material in the silo to the final process of packaging of the products, all processes are in automatic control. Then there is neither worker in the processes nor the case of touching materials directly by the worker. Yes, this factory is typical equipment process industry.

Now once again let's consider the necessity of 5S. Why 5S activity is necessary? The factory becomes dirty and untidy which are serious obstructions of factory management. Why becomes dirty and untidy? The sources of dirty and untidy are mainly the handling materials and tools by people and the production machines.

However the process of chemical reaction equipment doesn't generate the dirty such as shavings, scattering of oil & lubricant and scrap. The process of chemical reaction equipment doesn't generate the work-in-progress and doesn't require the material handling by the worker. The chemical reaction process doesn't have the processing of such as assembly worker with tools. At some regular time the worker needs to patrol the process and record the numeric value of the instruments of the chemical reaction equipment. Of course such factory also needs to implement the regular katazuke activity in the range of common sense. And this factory has the process of packing and shipping which process needs to have the handling of some workers and it is good idea to implement 5S. But just because it such a factory doesn't need the 5S activity in all area, but just necessary area. The case of this factory it is necessary to implement the certain PM to prevent the problems which happen daily (perhaps) and are the leaking materials from the pipe and the troubles of the packaging machine which I saw when I visited the plant rather than the pre-activity of 5S.

The leader believed the necessity of 5S as the foundation of 8 pillars of TPM and had declared the implementation of 5S to his company.

And there was a reason for it. He showed me one video which showed the comment of a Japanese consultant who said the lack of 5S for the introduction of TPM.

I understood that the Japanese consultant mentioned 5S to stall for time on the diagnosis and it is not a pleasant manner as a consultant.

I wrote the necessity of regular katazuke activity in common sense.

But when made the meeting in Dunkirk (Dunkerque in French) with the factory managers, I found that some managers are convinced that 5S is equal to the regular katazuke which includes the annual Seiso campaign. Of course it is wrong thought and katazuke is just one process of 5S.

And I hope you to practice right 5S for the effectiveness to the factory management.

Next I write the final theme the training of Shitsuke.

"Shitsuke" it is the activity of Education & Motivation and most bothering theme.

Can the people of factory love their job and place?

Or can you let your people love their job and place?

